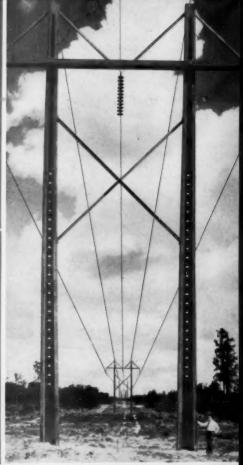
# CONCRETE







OUR 53RD YEAR!

Serving the Concrete Industries

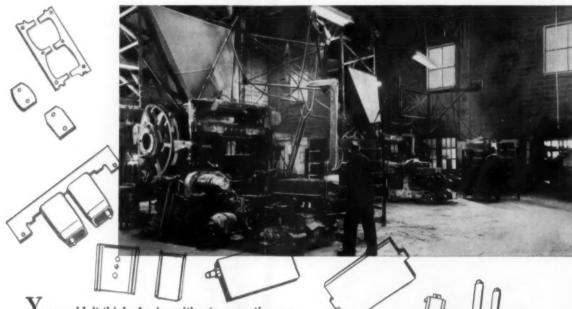
AUGUST 1957



The Wise Motorist
Always Carries
a Spare!



## and the Wise Blockmaker Always Carries Spare Parts!



You wouldn't think of going without a spare tire on a pleasure trip! Then it's all the more important to carry spare parts for your Vibrapac machine. For if your Vibrapac suddenly comes to a standstill — your income stops — your customers become disgruntled because you are unable to make block deliveries — your employees are compelled to stand by without work (but still on the payroll) — and your blood pressure hits the ceiling. So play safe. Always carry an adequate supply of Genuine Besser Parts for your Vibrapac machine. Your Besser representative will gladly assist you in making the selection. Phone him — today.

BESSER Company

DEPT. 127, ALPENA, MICHIGAN, U. S. A.

First in Concrete Block Machines

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BUFFALO 116 Michigan Avenue Buffalo, New York Phone: MOhawk 3990 & 6019

ALPENA Besser Factory Store Alpena, Michigan Phone: 291

LOS ANGELES 6100 Sepulveda Bivd. Van Nuys, California Phone: STate 5-5457 NEWARK 140 Delancy Street Newark, New Jersey Phone: Mitchell 2-1434



# MOTOROLA 2-WAY RADIO COSTS YOU and fact, many 2-way hour a cl the pioneer and lead per

Your driver spends a good two minutes every hour in phone hunting, parking and checking in regularly every day. By eliminating just this, your Motoroia radio pays for

itself—but that's not all. It saves time
and money a dozen other ways. In
fact, many users report that Motorola
2-way radio control saves them an
hour a day and more for every truck!

And they're glad they chose Motorola—for the pioneer and leader produces equipment that

performs better and lasts longer.

Add it up for yourself—you'll see
why Motorola 2-way radio
costs you nothing—
actually makes money for you!
Why delay any longer?
Contact Motorola today.

IF YOUR DRIVER SAVES 2 MINUTES AN HOUR WITH RADIO



Even if your cost is as low as \$5.00 an hour . . . \$3.00 for the truck and \$2.00 for the driver . . . saving as little as 2 minutes an hour\* for each radio-equipped truck will more than pay for your Motorola 2-way radio system, including installation and maintenance. And after three years, the system is all yours!

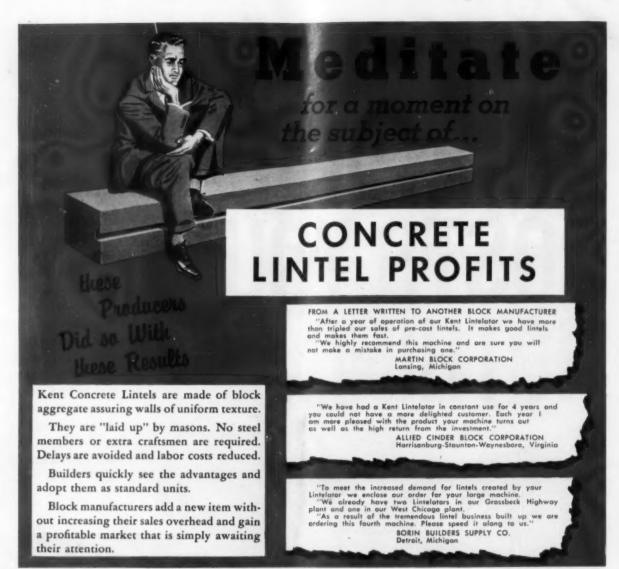
\*Based on ultra-conservative three year amortization schedule.



MOTOROLA

2-WAY PADIO

MOTOROLA COMMUNICATIONS & ELECTRONICS, INC. . A Subsidiary of Motorola, Inc. . 4501 Augusta Blvd. . Chicago 51, Illinois

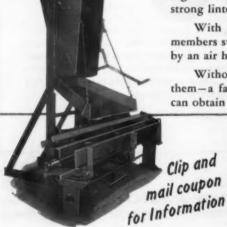


The Kent Lintelator is a simple, compact machine that can be operated by any laborer.

Reenforcing bars are put in position and aggregate fed into the vibrating form. The vibrating pressure plate moves into position and brings the strong lintel to accurate dimensions.

With the pressure plate retracted the mold is rolled over and end members swung out. The front channel which serves as a pallet, is lifted by an air hoist and transferred to the curing rack.

Without exception purchasers of Lintelators are highly pleased with them—a fact that should induce you to immediately learn how you too can obtain this additional profitable business.



the KENT MACHINE CO. CUYAHOGA FALLS,
OHIO
DIVISION OF THE LAMSON & SESSIONS COMPANY
Canadian Distributor: Wettlaufer Equipment, Ltd., 49 Merton St., Toronto 12, Ontario

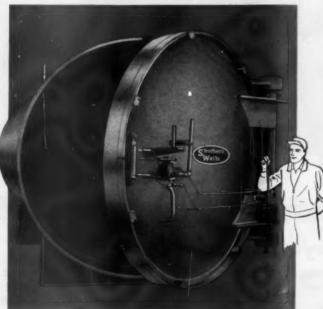
I've thought it thru and want the LINTELATOR story without delay.

Company
Address
City
Att. of



Insist on Struthers Wells

# **RING-LOK DOORS**



Quick opening... Positive closure!

#### CONSIDER THESE FEATURES

- · Longest gasket life in the concrete block industry
- · Seals against vacuum or any pressure up to working pressure
- · Locking ring groove is exposed when door is open, allowing for quick and easy cleaning
- · Simple, rugged ASME Code construction for trouble-free operation
- · Door is furnished with safety interlock device and positive safety system is available
- · Low initial cost plus savings in gaskets, maintenance and steam losses means more profit per block



#### Struthers Wells Products

Offices in Principal Cities

#### FORGE DIVISION

Crankshafts . . . Pressure Vessels . . . Hydraulic Cylinders . . . Shafting . . . Straightening and Back-up Rolls

#### MACHINERY DIVISION

MACHINERY for Sheet and Structural Metal Forming . . . Tangent Benders . . . Folding Machines . . . Roller Table and Tumble Die Bending Machines . . . Prombing and Notching Machines . . . Forming Dies

#### PROCESSING EQUIPMENT DIVISION

Crystallizers . . . Direct Fired Heaters . . . Evaporators . . . Heat Exchangers . . . Mixing and Blending Units . . . Quick Opening Doors . . . Special Carbon and Allay Processing Vessels . . . Synthesis Converters

#### BOILER DIVISION

BOILERS for Power and Heat . . . High and Low Pressure . . . Water Tube . . . Fire Tube . . . Package Units

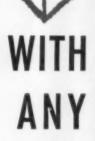


#### STRUTHERS WELLS CORPORATION

TITUSVILLE, PA.

Plants at Titusville, Pa. and Warren, Pa.

YEARS AHEAD TOMORROW





Hydraulic

# GOCORP, TRUSTE

NO DRAWING BOARD DREAM BUT THOROUGHLY FIELD TESTED-THE BIG, HEAVY DUTY, 3 at a time, PLAIN PALLET, "SUPER" TRUSTEE IS READY TO GO TO WORK FOR YOU NOW!

#### CONSIDER THESE FACTS!!!

- HIGHER PRODUCTION-Up to 1100 good blocks per hour, with many aggregates, without abusing the machine.
- TOP QUALITY BLOCKS-Fewer culls in production . Fewer rejects on the job . Variable cycle—for complete flexibility and constant control of quality . Accurate height control.
- LOWER MAINTENANCE—Hydraulic operation means fewer wearing parts . Smoother operation . The elimination of cams, cam followers and gears means big maintenance savings for you.

- QUICK MOLD CHANGE—Change full height molds in about 20 minutes-to other heights in about 30.
- RUGGED CONSTRUCTION Heavy duty frame with heavy plate cross bracing Heavy duty bearings 5" dia. cross shafts The "Trustee" is built to last.
- NO BRAKE FAILURE —"Trustee" vibrator motors are 10 HP plug reversing type • Designed for frequent stops and starts • No brakes to cause trouble.

Both the "SUPER" TRUSTEE and the new economy model, TRUSTEE "SPECIAL" (also a 3 at a time), will accommodate, without alteration, molds of the majority of plain pallet machines now in use. You can have all the advantages of the modern hydraulic TRUSTEES and protect your mold investment too!

AND THAT'S NOT ALL - Ask about these other fast selling hydraulic TRUSTEE models:

TRUSTEE "SPECIAL"...... 3 at a time economy model TRUSTEE 235X ..... up to two 10 x 8 x 16" units per cycle and other combinations

TRUSTEE 2X . . . . . . up to two 8 x 8 x 16" units per cycle and other combinations

IT COSTS LESS TO OWN A GOCORP . . .

. . . . BECAUSE VALUE IS A GOCORP PRODUCT

ADRIAN-MICH.

# AUGUST 1957 CONCRETE

VOL. 65, No. 8 . EST. 1904 . PUBLISHED MONTHLY BY CONCRETE PUBLISHING CORP. . 400 W. MADISON ST., CHICAGO 6, 111. . Central 6-8822

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#### FEATURES FOR THIS MONTH

Precast	the White Marble Face	20
	Otto Buehner and Company, Sait Lake City, Utah, parlays its ex-	
	perience in precasting to get the contract for supplying more than	
	100,000 square feet of white marble facing for a bank in Denver,	
	more than 500 miles away. Here is a picture story of the produc-	
	tion-line operation set up to supply these slabs. By Truman Sparks	

#### 

An unique 20,000-seat stadium in Montevideo, Uruguay, utilizes precast slabs for its roof. After they are put in place, the entire structure roof is prestressed. By this method, costs are greatly decreased, and all interior supports are eliminated.

#### 

Results of the National Ready Mixed Concrete Association's annual survey of the industry. Also, for comparison, totals of previous surveys are included. By Kenneth E. Tobin, Jr.

#### 

South Texas Materials Company, Ready Mixed dealer at Corpus Christl, supplies the concrete for this huge quantity of wave breakers, which are being shipped by barge 85 miles to the new harbor facilities at Port Mansfield. By R. E. Walter

#### 

This is the second and concluding part of an extensive article on the types, method of manufacture, and trade names of lightweight aggregates. Included, also, are some of the solutions to problems connected with use of these materials in concrete. By William Grant

#### 

The editor believes adoption of a customer policy similar to that offered by General Ready Mixed Concrete, Incorporated, would soften the blow of demurrage charges. And, the end result would be increased efficiency, more volume with the same personnel, and at a reduced cost.

DOUGLAS LEE, EDITOR

DONALD T. PAPINEAU, Publisher



Advertising Representatives: Porter Wylie & Co., 114 East 13th St., New York 3, N. Y., Phone: Gramercy 5-3581; Crawford L. Elder, 2500 El Venado Drive, Puente, Calif., Phone: Oxford 44-116; Clarence L. Morton, 294 Washington St., Boston 3, Mass., Phone: Liberty 2-8538. Subscription Price: \$6.00 a year anywhere in the world, postpeid. Single copies, 50 cents each. Copyright 1957 by Concrete Publishing Corp. Accepted as controlled circulation publication at Mendota, Ill.



## ncor' Concrete 'WAFFLE'

Fifty-two Concrete Parabolas Cover 31/2-acre Reservoir-Typical 'Incor' Savings





• Kansas City, Kansas, has just roofed its 12-million-gal., 415-ft.diameter Argentine Reservoir, to prevent algae formation and assure adequate Summer water pressure.

Deriving requisite strength from its shape rather than mass, the hyperbolic paraboloid thin-shell concrete roof design, wafflelike in appearance, cut column requirements by 60%, took only 50% as much concrete as flat-slab construction, saved \$21,000 over next lowest alternative design.

Concreted with 'INCOR' 24-HOUR CEMENT, the fifty-two 46 ft. 10 in. square concrete shells, 3 in. minimum thickness, were completed at top economical speed-average, 7 shells in 5 working days.

Shells are supported at their centers, which rise 7 ft. 8 in. above edges, by cast-in-place concrete columns spaced 45 ft. 10 in. each way. Shell edges are dowelled to adjacent shells or to flat-slab

perimeter area.

Built in Winter (5° minimum outside temperature), concrete was steam cured, outside surface heat-protected. 'Incor's produced specified 3200 psi stripping strength in less than 48 hours . . . cut form requirements in half . . . produced maximum job speed at minimum cost.

Net result-quality concrete at less cost-good reason, Winter or Summer, for insisting on America's FIRST high early strength Portland cement. \*Reg. U.S. Pat. Off.



Owner: BOARD OF PUBLIC UTILITIES KANSAS CITY, KANSAS

Consulting Engineer: BURNS & McDONNELL ENGINEERING CO. Kansas City, Missouri

General Contractor: EASTMOUNT CONSTRUCTION COMPANY Kansas City, Missouri

THE ENTIRE CONSTRUCTION FIELD

#### LONE STAR CEMENT CORPORATION ALBANY, N. Y.

BIRMINGHAM . BOSTON . CHICAGO . DALLAS . HOUSTON INDIANAPOLIS . KANSAS CITY, MO. . LAKE CHARLES, LA. . NEW ORLEANS NEW YORK . NORFOLK . RICHMOND . SEATTLE . WASHINGTON, D.C.

LONE STAR CEMENT, WITH ITS SUBSIDIARIES, IS ONE OF THE WORLD'S LARGEST CEMENT PRODUCERS: 21 MODERN MILLS, 47,900,000 BARRELS ANNUAL CAPACITY



BERGEN MANUFACTURES A COMPLETE LINE OF BLOCK PLANT EQUIPMENT

about the new design features of the Bergen Front Pallet Feeder as well as Bergen's High-Production Tri-Matic Block Machine.

> LIGHT-WEIGHT HOIST SKIP-HOIST

MASTER CONTROL PANEL ZEROMATIC HEIGHT & DENSITY CONTROL MOLD REPAIR TABLE

Bergen equipment, is designed to give you better block and higher production. You'll surely want to know all

and a full line of plant maintenance equipment, parts, and repair service.

NUTLEY (N.J.), 2-7300



MACHINE & TOOL CO., INC. NUTLEY, NEW JERSEY

Cable address: "BERGENCO" (Nutley, N. J.)



# We help you "catch" more new business

When you're looking for new construction business, Dodge Reports can help you 'catch' just the jobs you want . . . because Dodge Reports cover the whole field of construction, tell you precisely what jobs are coming up and when. In addition, they tell you whom to contact and when bids are wanted (even who's bidding). If you'd like to see how you can get more and better business right in the area you serve, then read and mail this coupon today.

TO: DODGE REPORTS, DEPT. 66, 119 WEST 40th STREET, NEW YORK 18, N. Y.

Yes! I'd like to see how to get more business by knowing in advance who's going to build, what, when, where.

I want to know whom to contact and when to submit bids.

I'd like to see some Dodge Reports, and I'd like a copy of your booklet that tells how to use this accurate, daily, up-to-the-minute construction news service.

I understand that I can pick just the area in the 37 Eastern States and the type of construction activity that interests me. Also, that I won't have to wade through mounds of data to find the information I need.

I'm interested in General Building House Construction Engineering (Heavy Construction) 
in the Following Area:

NAME

ADDRESS.

CITY. ZONE STATE For Timed Selling to the Construction Indust



#### THE CHANGING PICTURE!

No doubt about it . . . a big share of tomorrow's business will be tied into the road building program — pouring on super highways, clover-leafs, and incidental structures, as well as bridges and culverts.

#### CALL FOR LOW SLUMP CONCRETE

These jobs call for low slump concrete — and only the man that has the right equipment WILL GET THE CALL.

#### YES, TRANSCRETES ARE THE ANSWER!

Long famed for mixing ability, TRANSCRETES are a natural for any low slump job. When you consider all of the other advantages — quality, long life construction . . . simple, more compact design . . . better weight distribution . . . maximum payload . . . greater maneuverability, the logical choice is TRANSCRETE.

TED (Truck Engine Drive)-5 to 7 yard sizes... Separate Engine Models, 4 to 7-yards mixing capacity.



Learn why Transcretes make you bigger profits...
write for these 2 TRANSCRETE BULLETINS

CONSTRUCTION MACHINERY COMPANY, Waterloo, Iowa



CIRCULAR CAPITOL TOWER resembles loaded automatic record player. Welton Becket, FAIA & Associates, Los Angeles, architects; Murray Erick Associates, Los Angeles, structural engineers. C. L. Peck, Los Angeles, contractor.



PLYWOOD SHEETS, with edges accurately trimmed to proper circumferences, form underside of floor disks. Shores remained in place until 7 days after the 3 succeeding floors were completed—averaging 36 days.



STEEL REINFORCING for first circular floor. Amount of steel reinforcement necessary, and exact placement, were calculated by Presan method of analyzing stresses by photo-reflected deflections in a model.

# Tower floats on concrete columns

TWELVE DISKS RISING above an 88' x180' rectangular base distinguish the unusual yet practical 13-story, reinforced-concrete headquarters building for Capitol Records, at Los Angeles.

Shear walls, employed in the base, are completely lacking above the first story. All loading — gravity and seismic — is taken by two sets of 24" x 24" reinforced-concrete columns (12 around the perimeter and 6 girding the core of the structure) and by 8" thick flat-plat floor slabs. Second-floor disk has 78' diameter, those above are 90', creating a definite "floating" effect for upper floors, particularly under night illumination.

Good continuity in concrete work despite unusual job problems, was established by a trained crew and onschedule delivery of regular 3000 psi concrete, processed in truck mixers of certified design, capacity, mixing speed and water control accuracy.



You have a right to insist on this Rating Plate. It certifies compliance with the high industry standards maintained for your protection by the Truck Mixer Manufacturers Bureau.

BLAW-KNOX CONSTRUCTION EQUIPMENT DIV.

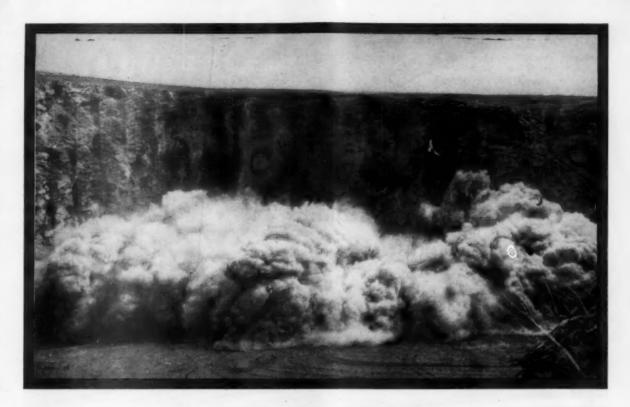
Motitoon, III.

CHAIN BELT COMPANY
Milwaukee, Wis.

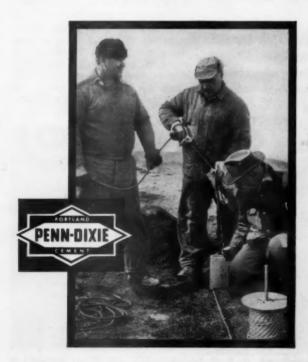
CHALLENGE MANUFACTURING CO.
Los Angeles, Colif.

CONCRETE TRANSPORT MIXER CO.
St. Louis, Mo.
CONSTRUCTION MACHINERY CO.
Waterloo, Iowa
THE JAEGER MACHINE COMPANY
Columbus, Ohio
THE T. L. SMITH COMPANY
Milwaukee, Wis.
WESTINGHOUSE TRANSIT MIXER DIV.
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WHITEMAN MANUFACTURING CO.
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WILLARD CONCRETE MACHINERY CO., LTD.

Lynwood, Calif.
WORTHINGTON CORPORATION
Plainfield, N. J.



# The "BIG SHOT" at a Penn-Dixie Quarry



Most dramatic of the many steps in producing quality cement is the "big shot"—the dynamite blast that can send thousands of tons of rock hurtling from quarry face to the floor below.

Like all Penn-Dixie operations, its "big shots" are precision controlled. A qualified explosives expert (kneeling at left) carefully supervises the charging of the holes, often 200 feet deep, which ring the quarry wall at 22-foot intervals.

When complete safety measures have been taken, the signal to blast is given and the dynamite does its job.

When the dust clears, husky, monster trucks move in to haul the rock to the crushing machines. Penn-Dixie cement is on the way.

#### Penn-Dixie means Permanent Dependability

#### OFFICES

New York • Philadelphia • Pittsburgh • Boston
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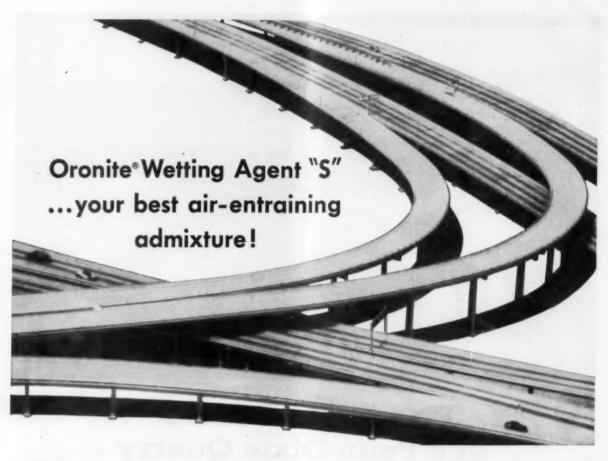
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#### DISTRIBUTING PLANTS

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PENN-DIXIE CEMENT Corporation





Tests recently concluded at the University of Toledo show Oronite Wetting Agent "S" qualifies completely as an air-entraining admixture and also provides considerable savings—when compared

to agents generally used for air-entraining. This high quality detergent, wetting agent and emulsifier meets all requirements of A.S.T.M. specification C233-52T.

You will discover Wetting Agent "S" is readily diluted into a liquid concentrate for easy addition to ready-mix. It mixes quickly and thoroughly to give uniform air dispersion throughout the mix. The possibility of getting excess air by over-dosage is greatly minimized with Wetting Agent "S".

As an air-entraining admixture, Wetting Agent "S" is generally lower in cost than other agents—costs you less than  $\frac{1}{4}\phi$  per cubic yard of concrete for an air content of 5%.

For technical data and information on prices and availability, just contact the Oronite office nearest you.



#### ORONITE CHEMICAL COMPANY

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42218

# INDUSTRY NEWS

#### Gasoline Tax Refund Pamphlet and Forms for Filing Available from Internal Revenue District Offices

Internal Revenue Service district offices have been supplied with publication number 378, "Federal Gas Tax Refund For Nonhighway and Transit Users," as well as form 843, which must be filed prior to September 30, 1957, by producers applying for the rebate.

In general, refund of the one-centa-gallon Federal excise tax will be made on gasoline, diesel fuel, and special motor fuels, such as propane and butane, used in any manner other than as a fuel in a highway vehicle.

Examples of such fuel use qualifying for a refund would be fork-lift trucks, conveyors, front-end loaders, and separate mixer engines.

Refunds will also be made on gasoline used in a highway vehicle if at the time of such use the vehicle is not registered under the laws of any state and is not required to be registered under the law of the state in which it is operated or situated.

"No refund is allowable with respect to gasoline used in the motor of a registered highway vehicle even though the motor is used for a purpose other than the propulsion of the vehicle." Mentioned specifically under this grouping of non-allowable

tax refunds is the mixing unit on a concrete truck mixer where the mixing unit is operated by means of a power take-off from the motor of the vehicle.

"However, if a registered highway vehicle is equipped with a separate motor to operate special equipment, the gasoline used in the separate motor will qualify for a refund. In those cases where the fuel is drawn from the same tank as the one which supplies fuel for the propulsion of the vehicle, a determination must be made of the quantity of gasoline used in the separate motor operating the special equipment. Such determination must be based, however, on operating experience and supported by records of the taxpayer."

## New Officers Lead Concrete Group in Florida

Officers for 1957-58 were elected by the board of directors of the Florida Concrete and Products Association.

 Heading the Florida Concrete and Products Association are, from left: George Goetz, second vice-president; Frank Williams, president; Robert Egelhoff, first vice-president; and Hugo Quillian, secretary-treasurer.

Frank Williams of Holloway Concrete Products Company, Winter Park, Florida, is the new president. His co-officers are Robert Egelhoff, Concrete Supply Company, Pensacola — first vice-president; George Goetz, Ft. Meyers Ready Mixed Concrete Company, Ft. Meyers — second vice-president; and Hugo Quillian, Quillian's Concrete Company, Daytona Beach — secretary-treasurer.

Directors elected for three-year terms are Leonard Hines, Jr., Monnah Park Block Company, Miami; Gary Marable, Ready Mixed Concrete Company, Ft. Lauderdale; Carl Martin, Martin Concrete Products Company, Sarasota; Connie Zimmerman, Cement Products and Supply, Lakeland; and Claude Shirley, Shirley Brothers Concrete Company, Pahokee.

#### Gives 3½ Yards or Cash For Late Site Delivery

General Ready Mixed Concrete Incorporated's answer to late arrival of ready mixed at the job site is what this Clearwater, Florida, producer calls "bonded delivery."

As Mr. A. V. Smith, general manager of the company, explained, this new customer service to *The Clearwater Sun*, "bonded delivery" works like this:

General Ready Mixed Concrete promises its regular customers that the first load of concrete will be at the job site no later than 30 minutes after the scheduled delivery time. If it doesn't arrive within this 30-minute period, the company agrees, according to the "bonded delivery" service, to give the customer three and one-half cubic yards of concrete, or its cash value.

This new service is available to any of General's regular customers simply by asking the dispatcher for it. For morning delivery, under the terms of the service, 12 hours notice must be given. Afternoon deliveries require only three hours notification.

A regular customer, according to Mr. Smith, is one who purchases all his material from General and also one who discounts his bills.

To such customers bonded delivery service can be had on any job in the Clearwater area which doesn't involve an additional distance hauling charge.

# Everybody's Business

#### CEMENT

• Though, as of this writing, a strike still hangs over a number of cement mills—and, correspondingly, an acute cement shortage faces many producers whose suppliers are still strike bound—three aspects seem relatively certain: (1) The general pattern for industry settlement will be near the figure agreed upon earlier by Marquette Cement and the United Cement, Lime and Gypsum Workers union—somewhat more than 13 cents an hour increase, plus fringe benefits. (2) A boost in mill cement prices to offset wage increases can be expected. Already one mill, Ideal Cement Company, which has signed with the union, has definite plans for an increase to go into effect in October. (3) With cement capacity, in most areas, exceeding present demands, resulting shortage from the strike will be comparatively short-lived, following the return of the striking union members to their jobs.

#### UNIONS

• With the acquittal of James Hoffa, Teamster vice-president, on charges of bribery and conspiracy, there's a possibility that he will be voted into Dave Beck's old job as president of the huge trucker's union. Such an event could bring about an A.F.L.-C.I.O. action to throw out the Teamsters and set up a rival union. The aftermath of this would be a series of clashes between unions over representation. Businesses having contracts with the Teamsters would be caught in the middle.

#### DEMURRAGE

According to word received from the National Ready Mixed Concrete Association, the Interstate Commerce Commission has authorized railroads to increase demurrage charges on cars from \$3 to \$4 for the first four days of detention after the expiration of free time. Charges for cars held longer than this would be increased from \$6 to \$8 per day. Saturdays, Sundays, and hoildays are excluded when computing detention time, except when a car is held two days over free time, or four working days.

#### HIGHWAY COSTS

• The public should brace itself for a stiff increase in the estimated costs for completing the Interstate Highway System, according to the American Road Builders Association. These increased costs will not come so much from labor, equipment, or materials, as from more complete facts on design criteria, highway location, and costs of rights-of-way.

#### CONSTRUCTION

• Though Congress and the President have authorized lower down payments on F.H.A.-insured mortgages, there is some hesitancy on the part of officials to put it into effect. They feel the new down-payment schedule would only add to inflationary pressures.

Figures for construction were up for June of this year. It was encouraging to note that though home building figures didn't set any records, they showed an increase over the previous month.

#### More Blast-Furnace Slag Used in 1956

Production of processed blast-furnace slag set new records last year, despite the steel strike which halted output for a period of several weeks. According to the Bureau of Mines, a total of 35 million short tons, valued at \$50 million, were processed. The major portion of the volume, approximately 25.5 million short tons, was processed as screened air-cooled slag. But significant increases went into the production of granulated and expanded slag production.

#### Besser Employees Receive Award for Safe Operation

J. W. Smale (left), vice-president of the Michigan Mutual Liability Company, presents Besser Company



plant manager R. M. Douglas with the Certificate of Merit. The award was presented to the management and employees of Besser Company for 303,360 man-hours of continuous of continuous continued to the continued as fety campaign was conducted at the main plant of the concrete machinery concern at Alpena, Michigan.

#### Customer Relations Post Created at Catsman Co.

A division of customer relations has been set up at the Catsman Company, ready mix producer with general offices at Flint, Michigan. Elmer J. Hanna of East Lansing was appointed as director of customer relations. He assumed his duties last month after eight and one-half years as administrative assistant to the Michigan state highway commissioner.

# The new 1958 (REE)



#### **ADJUSTA-WATE** MOTO-MIXER®



**New Control Panel** 

Look at this modern control panel. It's smart and attractive. The easy-to-reach-and-read controls are grouped together...increasing efficiency of the driver by saving waste motion. One-lever control regardless of the transmission you require is an exclusive with Rex. The clutch, gearshift, brake and automatic throttle are controlled by a single lever.

> Call, wire or write your local Rex Distribufor or CHAIN Belt Company, regarding the new 1958 Rex Adjusta-Wate Moto-Mixer.

easiest operation ever put into a truck mixer!

For the operator, here's a brand-new machine...easier to operate ... easier to clean. That's time saved, more concrete delivered every day, lower production costs, because operator produces more.

Exclusive Automatic Throttle-automatically slows engine to idle when clutch is disengaged and drum is stopped, returns to preset speed when re-engaged...permits easy wheelbarrow or curb and gutter work...eliminates time-consuming "fidgeting" with manual throttle control.

Straight-Back Chute Lock-permits driver to maneuver with chute fully extended. An important safety feature as chute can't swing and strike job-site material or workman. A time-saver, too, because locking is quick, eliminating the need to dismantle the chutes for job-site maneuvering.

More Maneuverable-with this new Rex, a driver can move right up to forms without back-breaking turning and backing up'... because the Adjusta-Wate design permits better mounting on a shorter wheelbase truck.

Cleanest Mixer Design-these new Rex models give you the most simplified, clean design. No corners, angles, channels to collect concrete, cement, sand or dirt. Save time and money on cleanup.

Easier Washup-you can wash up this modern-designed Rex fast. Rex Pumping System delivers a big 40-pound-per-square-inch washoff hose pressure. Even the most stubborn splatter is easy to remove.

Yes, with the new Rex you and your driver have the incentive to keep this machine neat and clean. That means less maintenance! And what better advertisement can an operator have than a spotless truck mixer rolling down the street!



ADJUSTA-WATE MOTO-MIXERS®

LEADERSHIP...THROUGH CREATIVE ENGINEERING

CHAIN BELT COMPANY

4665 W. Greenfield Ave., Milwaukee 1, Wis.



\* specially designed to cast huge

# PRESTRESSED CONCRETE ROOF GIRDERS

for American Cyanamid's new phosphate storage warehouse

Working closely with Prestressed Concrete, Inc., Florida Division's Form-Crete engineering staff supplied special mass-production steel casting side forms to produce prestressed concrete griders for supporting the roof of American Cyanamid's new triple phosphate storage plant at Brewster, Florida.

This is a typical example of the capability of our Form-Crete consultant service in supplying custom designed and fabricated steel forms to meet your requirements for specialized projects.

Important as this service is, our main objective is the supplying of skill-fully designed and engineered steel poured-in place and semi-portable side forms for flat bed casting. Fabricated to order, there is a Form-Crete form for virtually every standard prestressed concrete product.

Investigate this highly profitable new market—the prestressed concrete product field with its unlimited applications... write, wire or phone today—get into the prestressed concrete business now with FORM-CRETE steel casting forms!





### Calendar ...

#### 1957

AUGUST
25-28

Concrete Products Association of Michigan —
Late Summer Meeting —
Grand Hotel — Mackinac Island, Michigan.

AUGUST
25-31

National Ready Mixed
Concrete Association —
Semi-Annual Board of
Directors' Meeting —
Manoir-Richelieu — Murray Bay, Quebec, Canada.

AUGUST

The Expanded Clay and
Shale Association — MidYear Meeting — Andrew
Johnson Hotel — Knoxville, Tennessee.

OCTOBER
14-18

American Society of Civil Engineers — National
Convention — New York
City.

4-6
American Concrete Institute — Regional Meeting — Benjamin Franklin Hotel — Seattle, Washington.

November
17-19
Southeastern Concrete
Pipe Association — Tenth
Annual Convention —
Key Biscayne Hotel and
Villas — Miami, Florida.

#### 1958

JANUARY
16-18

National Concrete Products Association of Canada — Annual Convention — Chateau Laurier Hotel — Ottawa, Ontario, Canada.

22-23 Wisconsin Concrete
Products Association —
38th Annual Convention
—Loraine Hotel — Madison, Wisconsin.

February
9-13
National Ready-Mixed
Concrete Association —
28th Annual Convention
— Chicago, Illinois.

FEBRUARY
10-14
American Society for Testing Materials—Committee Week—Hotel Statler—St. Louis, Missouri.

February
17-19
National Concrete Masonry Association — 38th
Annual Convention —
Chicago, Illinois.

FEBRUARY
26-28
American Society of Civil Engineers — National
Convention — Chicago,
Illinois.

#### Study Reports Changes in Transportation Tax Law

Developments in the administration of the transportation tax law within the past four years have led to the joint publication of a report by the National Ready Mixed Con-crete Association and the National Sand and Gravel Association.

The book, entitled Application of the Transportation Tax to the Sand and Gravel and Ready Mixed Concrete Industries, was prepared by John T. Sapienza and William O. Newman, counsel for the associations. It discusses the tax problem as related to four methods used by producers in transporting their materials. Applicable cases are cited in the discussions of each method, and the final section of the book considers the procedure for compliance with the tax law.

This publication brings up to date a comprehensive report on the tax and its application which was published by the associations four years ago.

#### Stanton Walker and T. C. Powers Honored by ASTM

Stanton Walker, director of engineering for the National Ready Mixed Concrete Association and for the National Sand and Gravel Association, was honored by the American Society for Testing Materials for his 40 years of work in the field of concrete and concrete aggregates. He received the Frank E. Richart award, which was presented at the 60th annual meeting of the society at Atlantic City, New Jersey, in June. The award is made at most once every three years.

Mr. Walker is also the director of the NRMCA research laboratory at the University of Maryland and directs the NSGA research foundation. He has been active in ASTM committee work since 1926 in concrete. concrete aggregates, highway materials and methods of testing.

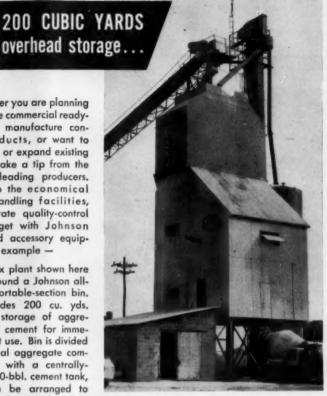
The Sanford E. Thompson award was given by the society to T. C. Powers, manager of the basic research section of the Portland Cement Association of Chicago. Mr. Powers was awarded for his outstanding work on concrete and concrete aggregates.

overhead storage... Whether you are planning to enter the commercial readymix field, manufacture concrete products, or want to modernize or expand existing facilities, take a tip from the country's leading producers. Check into the economical material-handling facilities, and accurate quality-control you can get with Johnson plants and accessory equipment. For example -Central-mix plant shown here is built around a Johnson allwelded, portable-section bin. This provides 200 cu. yds. overhead storage of aggregates and cement for imme-

handle 1 or 2 types of cement. Undertrack screw conveyor and vertical bucket elevator feed cement as needed into the bin, or into ground storage silo. Aggregates are fed from stockpile to plant by inclined belt conveyor, and pivoted distributor mounted at top of bin. Or, where preferred, aggregates can be handled by bucket elevator. All aggregates and cement are accurately weighed at top speed by a 3 cu. yd. Concentric batcher (see details

diate plant use. Bin is divided into 4 equal aggregate compartments, with a centrally-located 270-bbl. cement tank, which can be arranged to

> below), and discharged into Koehring 3 cu. yd. mixer. Correct amount of water for each batch is weighed out by Johnson water batcher. Plant also can be arranged for transit-mix or concrete products, with manual or automatic push-button control. It's described, along with many other sizes and types, in technical, 44-page concrete plants catalog. See Johnson distributor, or write for your copy.



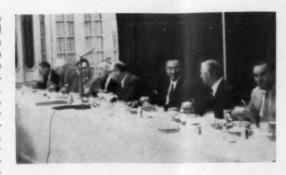


#### Central cement-feed

With Johnson Concentric batcher, all ingredients are intermingled as they flow through discharge. Concentric artlow through discharge. Concentric ar-rangement of aggregates around coment gives central cement-feed — prevents "gumming", reduces dusting, pre-shrinks materials. Actually, it's two separate batchers combined in one unit. Aggre-gates are weighed on accumulative dial scale, or on individual beam scales.
Cement is weighed separately on independent scale. Dual discharge available. Sizes: 2 to 8 yds., arranged for
2 to 8 aggregates, 1 to 4 types cement. Manual, semi- or full-automatic control.

CONCRETE PLANTS . BINS . RECEIVING HOPPERS . ELEVATORS . SILOS . BUCKETS

- Top: Guests of the Ohio Ready Mixed Concrete Association at the convention luncheon chat with the group's officers. Prominent guests were J. W. Roberts, NRMCA president; F. E. Schouweiler, NRMCA vicepresident; V.P. Ahearn, NRMCA executive secretary; and T. E. Durkin, executive secretary of Wisconsin Ready Mixed Concrete Association.
- Below: The Ohio group's officers are, from left: out-going president R. H. Slugg, named director; R. W. Ochsenhirt, new president; E. E. Osborn, vice-president; W. W. Sloter, director; R. H. Anderson, treasurer; and C. L. Clark, secretary.





#### Investigation Findings In School Roof Collapse

On August 30, 1956, a section of roof collapsed on the newly completed Blanckner Elementary School, Orlando, Florida. Immediately, all concerned with the structure—the architect, School Board, general contractor and concrete fabricator—agreed that an investigation into the causes of the collapse should be undertaken by competent professional engineers. The investigating board named for this purpose included: H. Ross Bryan, Consulting Engineer, Nashville, Tenn.; H. H. Edwards, President, Leap Concrete, Inc., Lakeland, Fla.; and Professor A. M. Ozell, College of Engineering, University of Florida, Gainesville, Florida.

The engineers have completed their investigations and have released the following report to the Prestressed Concrete Institute. The report states:

- The collapse was not caused by ultimate failure of the slabs.
- The design of the roof slab was defective in that the extreme fiber stresses exceeded the allowable.
- The cracking of the slab resulted in excessive deflection and the ponding of water on the roof which brought about

more deflection and also rotation of the slab at the supports.

 The bearing points of the slab on the concrete block wall were eccentric and the wall design was inadequate.

5. The rotation of the slabs shifted the bearing point causing the wall to collapse. This wall, which had window openings from one end to the other, its pilasters and the tie (bond) beam were inadequately designed.

#### Presidents of Two Ohio Ready-Mix Plants Succumb

Heart attacks proved fatal to two presidents of Ohio ready-mix plants.

Charles McNamee, former president of McNamee Ready Mixed Concrete Company, Xenia, Ohio, passed away the evening of May 16. His funeral was held on May 18 in Xenia.

Services for Glenn J. Pierman, former president of Northwest Materials, Incorporated, Bryan, Ohio, were held May 25 at the La Point Funeral Home in Ottawa, Ohio. Mr. Pierman was taken May 21 in the Bryan hospital.

#### **Cement Production**

April production of finished portland cement, as reported by 164 plants in 37 states and Puerto Rico, totaled 23,976,000 barrels. This is a decrease of eight per cent from the 26,134,000 barrels produced in April 1956.

Shipments were down, too, by 15 per cent. April 1957 figures show 23,125,000 barrels as compared to the 27,087,000 barrels for April of last year.

Mill stocks of 34,893,000 barrels were on hand at the end of the month. This is a 22 per cent increase from April 1956 when total stocks on hand were 28,679,000 barrels.

#### Ready Mix Prices Will Be Included in Price Index

The National Ready Mixed Concrete Association reports that ready mixed concrete prices will be included in the monthly Wholesale Price Index, published by the United States Bureau of Labor Statistics. The index provides information on price movements of basic building materials in typical marketing areas. Because the ready mix industry is relatively new, it has not been included.

Ewan Clague, commissioner of the bureau, was contacted by the NRMCA because of frequent requests from members for price information in parts of the country. Mr. Clague is now gathering data from producers in all sections of the United States. The industry will be advised when the first index report refers to ready mixed concrete.

#### Catsman Helps Finish Huge Machine Bridge

Catsman Company of Flint, Michigan, was awarded the contract to produce and supply the more than 25,000 cubic yards of concrete needed to complete the anchorage piers of Mackinac Bridge. The piers will support the main section. Catsman has plants on either side of the Straits of Mackinac which the bridge spans.

## PLANT NOTES

Knott Stone and Asphalt Company has been recently incorporated in Hopkinsville, Kentucky.

Operations began in June in the new plant of Pinellas Concrete Products at Saint Petersburg, Florida. It has a capacity of 200 cubic yards of concrete per hour, and with the installation of two new block machines, a capacity of 1800 concrete units per hour.

Canada's Thorold Concrete Block Company in Hamilton, Ontario, is planning extensive expansion to double the autoclave production of the plant.

Pre-Stressed Company of Newton, Kansas, will manufacture pre-stressed concrete bridge and building members, including roof members, beams, and concrete piling. The Empire Pre-Stressed Concrete Company of Oregon, a subsidiary of the Empire Building Materials Company at Portland, Oregon, has completed a \$150,000 expansion program. New installations include a 400-foot pre-stressing bed and batching plant.

Statler Ready Mixed Concrete Company of Kalamazoo, Michigan, has completed installation of a materials-handling system which handles 300 tons of aggregate per hour.

Mountain Industries, Incorporated, of Hopkinsville, Kentucky, has been incorporated to supply cement, concrete, metal and clay.

Fred C. Bammen has obtained a permit to build and operate a concrete products plant near Hallandale, Florida.

Holloway Ready Mix Company Number 2, Incorporated, was incorporated recently in Middletown, Kentucky.

#### May Construction Awards Help Bring Up 1957 Total

Contracts for future construction in the United States rose sharply in May, F. W. Dodge Corporation, construction news and marketing specialists, reports.

The total of \$3,399,528,000 in May was 14 per cent above the comparable month last year. One significant feature of the May figures is the fact that the dollar volume of contracts for one- and two-family houses was at the same level as in May 19-56. This marks the first month of 1957 that the dollar volume of contracts for this type of building did not fall below the comparable year-earlier level. The number of housing units represented by the May contracts was 101,741, down five per cent from the same month last year.

Contracts for non-residential buildings totalled \$1,119,587,000, in May, 11 per cent higher than a year ago. Substantial gains were registered for hospital buildings, educational and science buildings, commercial buildings, and manufacturing buildings.



Ben C. Gerwick's Petaluma yard was toured by those attending the prestressing conference.

# Precast The White Marble Face

by TRUMAN SPARKS

AT the end of May, Otto Buehner & Company of Salt Lake City was about mid-point in its big job which began April 1 and called for casting and finishing well over 100,000 square feet of white marble slabs to face the new 28-story First National Bank Building of Denver.

Setting up for the project required devoting about half of the company's available floor space; and organizing the operation to cast and finish an average 900 square feet of stone per day, without having to cut back on other jobs, was one of the first problems faced by O. C. Wilde, production engineer, and Marvin Allred, foreman of the cast stone department.

This was accomplished by utilizing some of the extra space at the company's nearby prestressed concrete division plant. Here, a 70x200-square-foot auxiliary plant, capable of turning out from 800 to 900 square feet per day, was set up to handle overflow from the main plant.

The next problem was to engineer a mass production system for turning out a volume amount of premium quality cast stone and for co-ordinating efforts of the work crews for maximum efficiency. Molds were set up waist high in rows, with ample space between rows to permit passage of materials and to enable working crews to approach the molds from both sides. The molds were constructed so that they would be semi-portable and could quickly be assembled and disassembled for repeated reusing.

The job was organized so that more than 50 per cent of the work could be performed by common labor; and, therefore, recruiting the extra hands was no particular problem.

First step in a day's run is to remove the slabs from the previous day's cast. Sides of the molds, beginning (Continued on page 26)

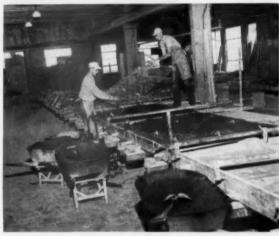




 Worker sprays a special oil-base paint into mold to prevent pour from bonding to the mold's surfaces.



 Row of white Georgia marble and white cement is spread evenly in a one-inch thick layer in the mold.



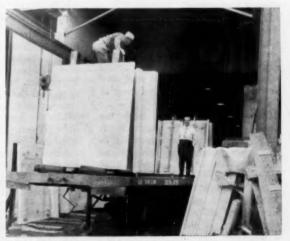
Backing the white marble face is a sheet of reinforcing mesh. Next comes an inch-thick layer of concrete.



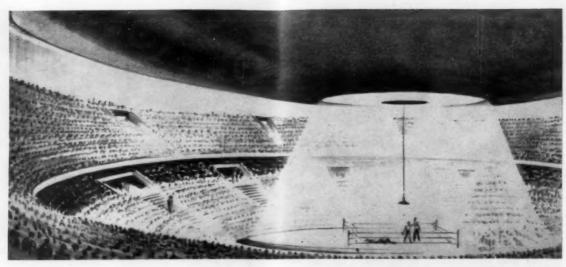
A Buehner-developed vibrator works the coarse aggregate in prior to a hand finishing operation.



 Seven days of curing; and then the slabs are subjected to a five-stage grinding and polishing operation.



 Finished slabs are loaded on trailer in Salt Lake for shipment direct to the job site 500 miles away.



# PRESTRESS Roof's 9,000 Precast Slabs

A unique prestressed roof, composed of 9,000 precast slabs supported by cables, shelters the 20,000-seat stadium in Montevideo, Uruguay. It was conceived by Mondino & Viera of Montevideo, with The Preload Company, Incorporated, acting as special consultants on the prestressed roof system.

The stadium is cylindrical in shape, has a diameter of 310 feet, and is 85 feet high. The roof is supported on 256 cables anchored at one end to a compression-ring cornice which tops the cylindrical wall, and at the other end to a steel ring at the center of the stadium.

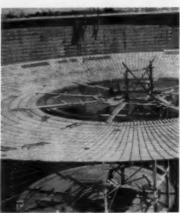
The compression ring, atop the wall, is of reinforced concrete. Roof-supporting strands are anchored to this compression ring and extend inward to an 18-inch-diameter steel ring to which they are bolted. This ring is composed of two, 2-inch-thick, 12-inch-wide parallel component rings which are held apart by spacers and welded at the inner edges to a hoop-like element.

Next, some 9,000 precast slabs were installed to rest on the cables. These slabs, which varied in width depending upon their position on the roof, were 2-inches thick, a little over three feet long, and trapezoidal in shape.

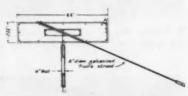
Transverse reinforcing bars extend laterally from each slab. The end of the bars were formed into hooks which looped over the cables and supported the slab.

In order to prevent cracking of the roof from the cables stretching after a period of use, the 850-ton roof was prestressed. This was done by placing bricks on the slabs to over load the cables by 50 percent, thus causing the cables to stretch. While the load was in place, openings between slabs were filled with concrete. After the pour hardened, the overload was removed, skylights installed, and waterproofing applied.

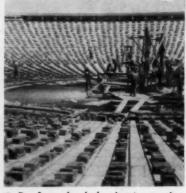
In all, only 40 days were required to complete this roof. Cost of the stadium by this method was \$644,000. An aluminum roof construction was estimated at \$1,900,000, and cost-estimate of a construction using reinforced concrete arches was \$2,400,000.



Slabs being placed on cables



· Cable anchoring device atop wall



Roof overloaded prior to pouring

# 1956's Ready Mixed

# Totals

#### By KENNETH E. TOBIN, JR. Associate Executive Secretary,

**National Ready Mixed Concrete Association** 

The National Ready Mixed Concrete Association has completed its sixth annual survey of the production and value of ready mixed concrete. This survey is designed to fill the need for a reliable measurement of the contribution which the ready mixed concrete industry makes each year to the national economy.

Questionnaires were sent to the 2,314 ready mixed concrete companies in the United States of whom we have record. Returns were received from 1.097 companies. In addition to receiving returns from 1,097 companies, data were also available on the 150 member companies who did not return the questionnaire. These statistics have been incorporated in the study, making a total participation of 1,247 companies, or 54 per cent of the companies surveyed.

Following are six tables which reflect the results of our survey of ready mixed concrete activity in 1956. Table 1 shows that the reporting companies produced 73,161,996 cubic yards, valued at \$962,626,686, with an average value of \$13.16 per cubic yard. The results of our 1953, 1954 and 1955 surveys are also in-

TABLE 1-READY MIXED CONCRETE IN 1953, 1954, 1955, AND 1956

1:	953	1954	1955	1956
Companies surveyed	1,791	1,975	2,308	2,314
Companies reporting	1,013	1,218	1,344	1,247
Production (cu. yds.) 53,	404,513	61,914,534	69,764,099	73,161,996
	482,350	\$760,310,478	\$871,353,597	\$962,626,686
Average value			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
(per cu. yd.)	\$11.92	\$12.28	\$12.49	\$13.16
Portland cement	*		*	******
	082.222	82.346.330	91.000.000	95.200.000
Sand and coarse aggre-				
	517,457	103.397.272	112.000.000	117,100,000
Average production	52.719	50.833	51,908	58,670
Median production	25,785	27,662	27,396	29,253

1956 total includes 150 member companies not actually replying to the question-naire but whose reports were otherwise available.

1956 totals of portland cement and sand and coarse aggregate consumed are Association estimates based on reported actual production of 73.161.996 cubic yards of concrete.

The average production was determined by dividing the total production by the number of reporting companies; the median production is that of the "middle" company — i.e. in this sample of 1.247 companies, the 624th company from the top.

TABLE 2-DISTRIBUTION OF 1956 READY MIXED CONCRETE PRODUCTION BY SIZE OF COMPANY

1956		Cubic	Percent	Percent of Partici- pating	Per	mulated cents lotals
Production (cu. yds.)	No. of Companies	Yards Produced	Reported Production	Com-	Total Production	Total Companie
0- 10,000	210	1,501,544	2.1	16.8	2.1	16.8
10,000- 20,000	264	3,887,491	5.3	21.2	7.4	38.0
20.000- 30.000	159	3,999,455	5.5	12.8	12.9	50.8
30.000- 40.000	120	4.205.060	5.7	9.6	18.6	60.4
40,000- 50,000	114	5,143,510	7.0	9.1	25.6	69.5
50,000- 60,000	77	4,225,641	5.8	6.2	31.4	75.7
60,000- 70,000	54	3,498,056	4.8	4.3	36.2	80.0
70.000- 80.000	40	2,965,242	4.0	3.2	40.2	83.2
80.000- 90.000	32	2,730,695	3.7	2.6	43.9	85.8
90.000-100.000	20	1,894,833	2.6	1.6	46.5	87.4
100,000-125,000	42	4,701,193	6.4	3.4	52.9	90.8
125,000-150,000	19	2,598,530	3.5	1.5	56.4	92.3
150,000-175,000	14	2,264,728	3.1	1.1	59.5	93.4
175,000-200,000	19	3,553,945	4.9	1.5	64.4	94.9
200,000-250,000	21	4,727,593	6.5	1.7	70.9	96.6
250,000-300,000	11	2,994,861	4.1	0.9	75.0	97.5
300,000-400,000	12	4,193,695	5.7	1.0	80.7	98.5
400,000-500,000	8	3,575,577	4.9	0.6	85.6	99.1
over-500,000	11	10.500,347	14.4	0.9	100.0	100.0
Total	1,247	73,161,996	100.0	100.0	_	_

cluded in Table 1 so that comparisons can be made with those years.

Based on the reported production of 73,161,996 cubic yards of concrete, we estimate that the reporting ready mixed concrete producers used approximately 117,100,000 tons of sand and coarse aggregate and 95,200,000 barrels of portland cement. The average production per company was 58,670 cubic yards; the median production was 29,253 cubic yards.

Table 2 is an analysis of the distribution of ready mixed concrete production in 1956 by size of com-

pany, based on returns from the 1,247 companies. The largest number of companies are in the 4 smaller brackets: 0-10,000 cubic yards, in which there are 210 companies, responsible for 2.1 per cent of the total production; 10,000-20,000 cubic yards, in which there are 264 companies, responsible for 5.3 per cent of the total production; 20,000-30, 000 cubic yards, in which there are 159 companies, responsible for 5.5 per cent of the total production; and in the 30,000-40,000 cubic yard bracket, in which there are 120 companies, producing 5.7 per cent of the total production.

Table 3 presents the production value, and plant equipment data on a state basis. Table 4 presents consumption data on a similar basis. It should be noted in connection with Tables 3 and 4, that in states and territories where less than 3 companies reported, the data are not separately presented. This procedure is necessary in order to carry out our pledge to reporting companies that no use will be made of the data which might make possible the disclosure of individual company figures.

Eleven companies produced more than 500,000 cubic yards of concrete

TABLE 3-READY MIXED CONCRETE PRODUCTION, VALUE AND TYPE OF OPERATION IN 1956, BY STATES

State	No. of Companies	Production (cu. yds.)	Value (\$)	Average Value per cu. yd.	No. of Central Mixing Plants	No. of Proportioning Plants	No. of Mixers or Agitators	No. of Non-Agitating Units
Ala.	. 18	875,584	\$ 10,084,358	\$11.52	14	18	219	24
Aris.	. 5	442,709	5,492,204	12.41	6	5	91	10
Ark.	10	289,922	3,336,054	11.51	5	12	104	23
Calif.	0.4	10,470,197	121,082,996	11.56	63	173	2,227	341
Colo.	1.0	821,764	9,371,829	11.40	7	17	191	21
Conn.	6.5	1,000,519	12.006.821	12.00	5	25	231	26
D. C		725,134	9,632,101	13.28	_	10	222	22
Fla.		2,489,515	37,496,495	15.06	23	46	561	30
Ga.	1.0	519,169	7,273,816	14.01	6	22	195	12
Idaho		127,388	1,685,686	13.23	2	7	42	18
11.1	ma	3,950,670	50.868.423	12.88	36	73	939	109
		1.998.192	25,646,792	12.83	34	30	546	26
	0.7	1.072.493	14,801,710	13.80	34	56	415	36
			9,515,959	12.15	15	13	205	57
	0.0	783.354 632.290	8,620,109	13.63	14	13	235	8
					9	25	216	7
La		920.275	12,062,649	13.11			71	í
Maine		191,547	2,497,431	13.04	3	. 8		8
Md		1.482.967	19.809.007	13.36	12	11	253	
Mass.		2,337,187	30.118.577	12,89	14	39	496	117
Mich		3,687,760	56.683,474	15.37	21	51	909	75
Minn.		880.608	12,820,273	14.56	13	22	280	55
Miss		318,890	4,030,557	12.64	9	12	115	17
Mo	. 24	1.256.242	16,308,032	12.98	6	37	384	49
Mont.	. 10	208,834	3,133,988	15.01	7	7	68	17
Neb	. 4	411,061	6,104,319	14.85	6	3	85	_
Nev	. 3	192,859	2,542,368	13.18	3	6	45	5
N. H	. 4	86,385	1,176,090	13.61		5	33	2
N. J		1,238,611	16,283,990	13.15	5	35	301	22
N. M	. 4	218,260	2,867,679	13.14	3	5	65	3
N. Y	. 41	4.370.235	61,538,993	14.08	16	95	1,234	231
N. C		618,664	8,642,621	13.97	9	20	217	13
Ohio	. 88	4,993,162	69,493,059	13.92	47	123	1,420	131
Okla.		255,448	3,333,631	13.05	2	12	101	4
Ore.		574,481	6,856,884	11.94	6	10	158	32
Pa		3,238,264	44,324,529	13.69	33	75	1,067	106
R. L		309.851	3,834,758	12.38	1	5	85	18
S. C		241,691	3.216.914	13.31	5	5	79	10
S. D	, -	117,690	1,534,001	13.03	- 5	1	26	27
Tenn.		521,418	6,509,688	12.48	22	6	163	4.7
Texas		3,202,032	38,324,954	11.97	37	76	757	108
Utah		388,361	4,593,278		5	4	81	7
Va		1,243,993	16.810.945	13.51	. 8	45	337	18
		1,064,720	14,109,177	13.25	25	21	323	85
		586,799		14.68	11	23	306	47
			8.617.096		18	50	457	. 58
		1,664,522	21,475,429	12.90		2	44	12
10 11		105,958	2.633.824	24.86	3		72	
0.1 1		279,780	4,936,249	17.64	3	3	42	30
Other <sup>1</sup>	. 3	90,157	1,303,576	14.46	2	3	42	30
Totals	.1.097	63,497,612	\$835,443,393	\$13.16	633	1,365	16,713	2,077

<sup>(&#</sup>x27;) Includes all states and territories where less than three companies reported (Delaware, North Dakota, Vermont and Wyoming).

last year, accounting for 14.4 per cent of the total production. Less than 20 per cent of the total yardage was produced by 60 per cent of the companies reporting. Conversely, the five per cent of companies in the larger brackets were responsible for more than 35 per cent of the total ready mixed concrete production in 1956.

Table 5 contains data on amount of equipment and the number of plants by type in the ready mixed concrete industry. The statistics compiled in this table include only the

TABLE 5—EQUIPMENT AND PLANTS IN THE READY MIXED CONCRETE INDUSTRY

		1955			1956	
Туре	No. of Companies Reporting	No. of Units Reported	Av. No. of Units Reported	No. of Companies Reporting		Av. No. of Units Reported
Mixers or Agitators	1,212	16,460	13.6	1,097	16,713	15.2
Central Mixing Plant	s 467	635	1.4	440	633	1.4
Proportioning Plants	818	1,410	1.7	758	1,365	1.8
Non-agitating Units	1,212	2.054	1.7	1,097	2.077	1.9

Average number of mixers or agitators per plant reported above — 12.8 in 1955 and 13.9 in 1956

TABLE 4-CONSUMPTION OF READY MIXED CONCRETE IN 1956, BY STATES

State (cu.  Ala. 87 Ariz. 44 Ark. 28 Ariz. 40 Coli. 10,47 Colo. 87 Conn. 1,00 D. C. 77 Fla. 2,48 Ga. 51 Idaho 12 Ill. 3,98 Ind. 1,98 Ind. 1,98 Ind. 1,98 Ind. 1,98 Ind. 1,48 Mass. 2,33 Mich. 3,68 Mich. 3,68 Miss. 31 Mo. 1,23 Mon. 1,23 N. M. 21 N. Y. 4,37 N. C. 61	75.584 42.709 89.922 70.197 21.764 00.519 25.134 89.515 19.169 27.388 50.670 98.192 72.493 83.354 32.290 20.275 91.547 82.967	Home-building  241,749 221,901 124,767 3,217,279 320,342 410,261 206,766 1,321,604 122,107 72,249 1,941,682 496,007 287,529 297,265 176,379 240,097 66,721	Federal Public Works 33,243 1,110 2,919 434,654 40,447 31,233 71,482 33,827 16,713 2,514 27,966 20,515 15,730 75,602 16,337	Non- Federal Public Works 48.927 3,490 22.574 846,116 62,186 58,683 28,998 96,014 12,235 11,277 142,640 167,130 58,701	Streets and Highways 114.839 22.364 34.031 1.465.825 89.332 53.958 76.648 125.540 35.670 9.455 422.025 355.339		200.157 131.514 62.519 1.803.885 151.700 122.363 315.240 545.165 76.594 17.839	6,943 16,891 5,229 83,934 19,667 13,724 17,518 7,544 6,527	Other  12.215 11.077 5.905 142.934 8.855 19.979 1.000 5.966 7.057 500	Not Specified 338 60 1.179,673 1.716 141.253 225,633 151,685
Ariz. 44 Ark. 24 Ark. 26 Ark. 26 Colif. 10,47 Colo. 87 Conn. 1,00 D. C. 77 Fla. 2,48 Ga. 51 Idaho 17 Ill. 3,98 Ind. 1,98 Iowa 1,07 Kan. 76 Ky. 63 La. 97 Maine 18 Md. 1,48 Mass. 2,33 Mich. 3,68 Mins. 31 Mo. 1,23 Mon. 1,23 N. M. 1, 1,23 N. M. 21 N. Y. 4,37 N. C. 61	42,709 89,922 70,197 21,764 00,519 25,134 89,515 19,169 27,388 50,670 98,192 72,493 83,354 32,290 20,275 91,547 82,967	221,901 124,767 320,342 410,261 206,766 1,321,604 122,107 72,249 1,941,682 496,007 287,529 297,285 176,379 240,097 66,721	1.110 2.919 434.654 40,447 31.233 71.482 33.827 16.713 2.514 27.966 20.515 15.730 75.602 16.337	3,490 22,574 846,116 62,186 58,683 28,998 96,014 12,235 11,277 142,640 167,130 58,701	22,364 34,031 1,465,825 89,332 53,958 78,648 125,540 35,670 9,455 422,025	34,302 31,978 1,295,897 127,519 149,065 23,000 118,048 89,564 7,027	131,514 62,519 1,803,885 151,700 122,363 315,240 545,165 76,594 17,839	16,891 5,229 83,934 19,667 13,724 17,518 7,544	11,077 5,905 142,934 8,855 19,979 1,000 5,966 7,057	1,179,673 1,716 141,253 225,833
Ariz. 44 Ark. 24 Ark. 26 Ark. 26 Colif. 10,47 Colo. 87 Conn. 1,00 D. C. 77 Fla. 2,48 Ga. 51 Idaho 17 Ill. 3,98 Ind. 1,98 Iowa 1,07 Kan. 76 Ky. 63 La. 97 Maine 18 Md. 1,48 Mass. 2,33 Mich. 3,68 Mins. 31 Mo. 1,23 Mon. 1,23 N. M. 1, 1,23 N. M. 21 N. Y. 4,37 N. C. 61	42,709 89,922 70,197 21,764 00,519 25,134 89,515 19,169 27,388 50,670 98,192 72,493 83,354 32,290 20,275 91,547 82,967	221,901 124,767 320,342 410,261 206,766 1,321,604 122,107 72,249 1,941,682 496,007 287,529 297,285 176,379 240,097 66,721	1.110 2.919 434.654 40,447 31.233 71.482 33.827 16.713 2.514 27.966 20.515 15.730 75.602 16.337	3,490 22,574 846,116 62,186 58,683 28,998 96,014 12,235 11,277 142,640 167,130 58,701	22,364 34,031 1,465,825 89,332 53,958 78,648 125,540 35,670 9,455 422,025	34,302 31,978 1,295,897 127,519 149,065 23,000 118,048 89,564 7,027	131,514 62,519 1,803,885 151,700 122,363 315,240 545,165 76,594 17,839	16,891 5,229 83,934 19,667 13,724 17,518 7,544	11,077 5,905 142,934 8,855 19,979 1,000 5,966 7,057	1.179.673 1.716 141.253 225.833
Ark. 26 Calif. 10,44 Colo. 86 Conn. 1,00 D. C. 72 Fla. 2,44 Ga. 51 Idaho 12 Ill. 3,98 Ind. 1,98 Maine 19 Maine 19 Md. 1,48 Mass. 2,33 Mich. 3,56 Minn. 88 Miss. 31 Mo. 1,23 Mont. 20 Neb. 41 Nev. 18 N. J. 1,23 N. M. 21 N. Y. 4,37 N. C. 61	89,922 70,197 21,764 00,519 25,134 89,515 19,169 27,388 50,670 98,192 72,493 83,354 83,354 83,254 91,547 82,967 37,187	124,767 3,217,279 320,342 410,261 206,766 1,321,604 122,107 72,249 1,941,682 496,007 287,529 297,265 176,379 240,097 66,721	2,919 434,654 40,447 31,233 71,482 33,827 16,713 2,514 27,966 20,515 15,730 75,602 16,337	22,574 846,116 62,186 58,683 28,998 96,014 12,235 11,277 142,640 167,130 58,701	34,031 1,465,825 89,332 53,958 76,648 125,540 35,670 9,455 422,025	31,978 1,295,897 127,519 149,065 23,000 118,048 89,564 7,027	62,519 1,803,885 151,700 122,363 315,240 545,165 76,594 17,839	5,229 83,934 19,667 13,724 — 17,518 7,544	5,905 142,934 8,855 19,979 1,000 5,966 7,057	1.179.673 1.716 141.253 225.833
Calif. 10.47 Colo. 87 Colo. 87 Colo. 10 D. C. 77 Fla. 2.46 Ga. 51 Idaho 17 Ill. 3.93 Ind. 1.98 Ind. 1.98 Ind. 1.97 Kan. 78 Ky. 63 La. 97 Maine 18 Md. 1.48 Mass. 2.33 Mich. 3.68 Minn. 38 Mich. 3.68 Minn. 38 Mont. 123 Nov. 123 Nov. 123 Nov. 18 Nov.	70,197 21,764 20,764 20,519 25,134 89,515 19,169 27,388 50,670 98,192 72,493 83,354 32,290 20,275 91,547 37,187	3,217,279 320,342 410,261 206,766 1,321,604 122,107 72,249 1,941,682 496,007 287,529 297,265 176,379 240,097 66,721	434,654 40,447 31,233 71,482 33,827 16,713 2,514 27,966 20,515 15,730 75,602 16,337	846,116 62,186 58,683 28,998 96,014 12,235 11,277 142,640 167,130 58,701	1,465,825 89,332 53,958 76,648 125,540 35,670 9,455 422,025	1,295,897 127,519 149,065 23,000 118,048 89,564 7,027	1,803,885 151,700 122,363 315,240 545,165 76,594 17,839	83.934 19.667 13.724 — 17.518 7.544	142,934 8,855 19,979 1,000 5,966 7,057	1,716 141,253 225,833
Colo. 87 Conn. 1.00 D. C. 77 Fla. 2.48 Ga. 51 Idaho 11 Ill. 3,93 Ind. 1.99 I	21,764 00,519 25,134 89,515 19,169 27,388 50,670 98,192 72,493 83,354 32,290 20,275 91,547 82,967 37,187	320,342 410,261 206,766 1,321,604 122,107 72,249 1,941,682 496,007 287,529 297,265 176,379 240,097 66,721	40,447 31,233 71,482 33,827 16,713 2,514 27,966 20,515 15,730 75,602 16,337	62,186 58,683 28,998 96,014 12,235 11,277 142,640 167,130 58,701	89,332 53,958 76,648 125,540 35,670 9,455 422,025	127,519 149,065 23,000 118,048 89,564 7,027	151,700 122,363 315,240 545,165 76,594 17,839	19,667 13,724 17,518 7,544	8.855 19.979 1.000 5.966 7.057	1,716 141.253 225,833
Conn. 1.00 D. C. 77 Fla. 2.46 Ga. 51 Idaho 12 Ill. 3.98 Ind. 1.98 Iowa 1.07 Kan. 78 Ky. 63 La. 92 Maine Md. 1.48 Mass. 2.33 Mich. 3.66 Minn. 88 Miss. 31 Mo. 1.23 Mont. 20 Neb. 41 Nev. 18 N. H. 8 N. J. 1.23 N. M. 21 N. Y. 4.37 N. C. 61	00.519 25.134 89.515 19.169 27.388 50.670 98.192 72.493 83.354 32.290 20.275 91.547 82.967 37.187	410,261 206,766 1,321,604 122,107 72,249 1,941,682 496,007 287,529 297,265 176,379 240,087 66,721	31,233 71,482 33,827 16,713 2,514 27,966 20,515 15,730 75,602 16,337	58.683 28.998 96.014 12.235 11.277 142.640 167.130 58.701	53,958 76,648 125,540 35,670 9,455 422,025	149,065 23,000 118,048 89,564 7,027	122,363 315,240 545,165 76,594 17,839	13,724 17,518 7,544	19,979 1,000 5,966 7,057	141.253 225.833
D. C. 72 Fla. 2,46 Ga. 2,46 Ga. 12 Ill. 3,93 Ind. 1,96 Ind. 1,97 I	25,134 89,515 19,169 27,388 50,670 98,192 72,493 83,354 32,290 20,275 91,547 82,967 37,187	206,766 1,321,604 122,107 72,249 1,941,682 496,007 287,529 297,265 176,379 240,097 66,721	71,482 33,827 16,713 2,514 27,966 20,515 15,730 75,602 16,337	28,998 96,014 12,235 11,277 142,640 167,130 58,701	76,648 125,540 35,670 9,455 422,025	23,000 118,048 89,564 7,027	315.240 545.165 76.594 17,839	17.518 7.544	1,000 5,966 7,057	225,83
Fla. 2.48 Ga. 51 Idaho 12 Ill. 3.98 Ind. 1.97 Ind. 1.98 Ind. 1.97 Kan. 78 Ky. 63 La. 97 Maine 19 Md. 1.48 Mass. 2.33 Mich. 3.68 Mins. 31 Mo. 1.23 Mo. 1.23 N. M. 21 N. M. 21 N. Y. 4.37 N. C. 61	89,515 19,169 27,388 50,670 98,192 72,493 83,354 32,290 20,275 91,547 82,967 37,187	1,321,604 122,107 72,249 1,941,682 496,007 287,529 297,265 176,379 240,097 66,721	33,827 16,713 2,514 27,966 20,515 15,730 75,602 16,337	96.014 12.235 11.277 142.640 167.130 58.701	125,540 35,670 9,455 422,025	118.048 89.564 7.027	545,165 76,594 17,839	7,544	5.966 7.057	
Ga. 51 Idaho 12 Ill. 3.9 Ilnd. 1,95 Iowa 1,07 Kan. 76 Ky. 63 La. 92 Maine 18 Md. 1.46 Mass. 2.33 Mich. 3,66 Minn. 88 Miss. 31 Mo. 1.23 Mont. 20 Neb. 41 Nev. 19 N. H. 8 N. J. 1,23 N. M. 21 N. Y. 4,37 N. C. 61	19,169 27,388 50,670 98,192 72,493 83,354 32,290 20,275 91,547 82,967 37,187	122.107 72.249 1,941,682 496.007 287,529 297,265 176,379 240,097 66,721	16,713 2,514 27,966 20,515 15,730 75,602 16,337	12.235 11.277 142.640 167.130 58.701	35,670 9,455 422,025	89.564 7.027	76,594 17,839	7,544	7.057	
Idaho 11 III. 3,95 Ind. 1,95 Ind. 1,95 Ind. 1,95 Ind. 1,97 Ind. 1,	27,388 50,670 98,192 72,493 83,354 32,290 20,275 91,547 82,967 37,187	72.249 1,941,682 496.007 287,529 297,265 176,379 240,097 66,721	2,514 27,966 20,515 15,730 75,602 16,337	11,277 142,640 167,130 58,701	9,455 422,025	7.027	17,839			202/000
Ill. 3.98 Ind. 1.90 Ind. 1.97 Iowa 1.07 Kan. 76 Ky. 63 La. 97 Maine 18 Md. 1.48 Mass. 2.33 Mich. 3.68 Minn. 88 Minn. 88 Minn. 20 Moont. 20 Neb. 41 Nev. 18 N. H. 8 N. J. 1.23 N. M. 21 N. Y. 4.37 N. C. 61	50,670 98,192 72,493 83,354 32,290 20,275 91,547 82,967 37,187	1,941,682 496,007 287,529 297,265 176,379 240,097 66,721	27,966 20,515 15,730 75,602 16,337	142,640 167,130 58,701	422,025					_
Ind. 1.98 Iowa 1.07 Ky. 63 La. 97 Maine 19 Md. 1.48 Mass. 2.33 Mich. 3.68 Minn. 88 Mins. 31 Mo. 1.25 Mont. 20 Neb. 41 Nev. 18 N. H. 8 N. J. 1.23 N. M. 21 N. Y. 4.37 N. C. 61	98.192 72.493 83.354 32.290 20.275 91.547 82.967 37.187	496.007 287.529 297.265 176.379 240.097 66.721	20,515 15,730 75,602 16,337	167,130 58,701			409,859	103,606	107,055	252.264
Iowa 1.07 Kan. 78 Kan. 78 Ky. 68 La. 92 Maine 18 Md. 1.4 Mass. 2.33 Mich. 3.66 Minn. 88 Miss. 31 Mo. 1.25 Mont. 20 Neb. 41 Nev. 18 N. H. 8 N. J. 1.23 N. M. 21 N. Y. 4.37 N. C. 61	72,493 83,354 32,290 20,275 91,547 82,967 37,187	287,529 297,265 176,379 240,097 66,721	15.730 75,602 16,337	58,701	222,000	578,821	274,707	75,538	30,135	202,201
Kgn. 78 Ky. 63 Ld. 93 Ld. 93 Md. 1.48 Mdss. 2.33 Mich. 3.66 Minn. 88 Miss. 31 Mo. 1.25 Mont. 20 Neb. 41 Nev. 18 N. H. 8 N. J. 1.23 N. M. 21 N. Y. 4.37 N. C. 61	83.354 32.290 20.275 91.547 82.967 37,187	297,265 176,379 240,097 66,721	75,602 16,337		158,938	160,841	192,421	109,052	31,794	57,487
Ky. 63 La. 97 Maine 18 Md. 1,48 Mass. 2,33 Mich. 3,68 Minn. 88 Miss. 31 Mo. 1,23 Moot. 1,23 No. 1,23 N. H. 8 N. J. 1,23 N. M. 21 N. Y. 4,37 N. C. 61	32.290 20.275 91.547 82.967 37.187	176,379 240,097 66,721	16,337	29,276	241,309	32,356	69,277	12,939	19,430	5,900
La. 92 Maine 18 Md. 1.4 Mass. 2.33 Mich. 3.66 Minn. 88 Miss. 31 Mo. 1.25 Mont. 20 Neb. 41 Nev. 18 N. H. 8 N. J. 1.23 N. M. 21 N. Y. 4.37 N. C. 61	20.275 91.547 82.967 37.187	240.097 66,721		33,179	69,383	67,080	100,038	18,761	8,322	142.81
Maine 18 Md 1.48 Mass 2.38 Mish 3.66 Minn 88 Miss 31 Mo 1.25 Mont 20 Neb 41 Nev 18 N. H. 8 N. J. 1.23 N. M. 21 N. Y. 4.37 N. C. 61	91,547 82,967 37,187	66,721	29,148	88,412	189,985	141,797	180,318	11,145	31,271	8,102
Md. 1.48 Mass. 2.33 Mich. 3.68 Minn. 88 Miss. 31 Mo. 1.25 Mont. 20 Neb. 41 Nev. 15 N. H. 8 N. J. 1.23 N. M. 21 N. Y. 4.37 N. C. 61	82,967 37,187									0,104
Mass. 2.33 Mich. 3.66 Minn. 88 Miss. 31 Mo. 1.25 Mont. 20 Neb. 41 Nev. 19 N. H. 8 N. J. 1.23 N. M. 21 N. M. 4.37 N. C. 61	37,187		38,310	14,530	18,246	20,112	17,203	6,058	10.367	41.50
Mich. 3.68 Minn. 88 Miss. 31 Mo. 1.23 Mont. 20 Neb. 41 Nev. 18 N. H. 8 N. J. 1.23 N. M. 21 N. Y. 4,37 N. C. 61		484,679	148,500	86,000	129,203	465,369	78,101	13,682	35,933	41,500
Minn. 88 Miss. 31 Mo. 1.25 Mont. 20 Neb. 41 Nev. 15 N. H. 8 N. J. 1.23 N. M. 21 N. Y. 4,37 N. C. 61		653,657	261,967	267,915	382,415	359.775	276,919	12,427	55,954	66,158
Miss. 31 Mo. 1.28 Mont. 20 Mont. 40 Neb. 41 Nev. 15 N. H. 8 N. J. 1.23 N. M. 21 N. Y. 4.37 N. C. 61		1,093,463	31,472	241,119	379,693	697.030	628,039	21,601	62,392	532.951
Mo. 1,25 Mont. 20 Neb. 41 Nev. 19 N. H. 8 N. J. 1,23 N. M. 21 N. M. 21 N. Y. 4,37 N. C. 61	80,608	263,567	21,562	39,474	89.231	205,494	185,508	17,805	28,850	29,117
Mont. 20 Neb. 41 Nev. 19 N. H. 8 N. J. 1.23 N. M. 21 N. Y. 4.37 N. C. 61	18,890	91,790	6,101	7,766	38,562	77,398	76.058	8,568	12,648	_
Neb 41 Nev 15 N. H 6 N. J 1,23 N. M 21 N. Y 4,37 N. C 61	56,242	398,675	9,829	80.780	111,553	266,983	312,600	18,814	28,065	28,943
Nev. 19 N. H. 8 N. J. 1,23 N. M. 21 N. Y. 4,37 N. C. 61	08,834	84,396	10,791	17,658	19,495	26,231	27,194	6,199	3,193	13,677
N. H 8 N. J 1,23 N. M 21 N. Y 4,37 N. C 61	11.061	52,045	35,000	25,000	131,436	51,578	67,789	2,129	46.084	_
N. J. 1,23 N. M. 21 N. Y. 4,37 N. C. 61	92,859	42,113	53,400	11,500	24.000	11,000	47,336	1,000	1,000	1.510
N. M 21 N. Y 4,37 N. C 61	86,385	21,200	7.050	3,150	11,100	15,200	8.200	1,500	600	18.38
N. Y 4,37 N. C 61	38,611	348,958	35,679	57,480	135,505	397,180	201.270	14,413	27,665	20,461
N. C 61	18,260	65.513	24,751	29.019	2.746	10.026	57,733	155	3.797	24,520
	70.235	1,042,464	338,952	784,501	469,571	695,069	832,299	47,371	127,825	32,183
A11 4 00	18,664	115,536	29,600	49,715	108,288	117,805	137,708	15,713	17,632	26,667
Ohio . 4,99	93,162	1,425,249	134,825	398,133	699,175	1,004,241	812,099	114,090	89,121	316,229
Okla. 25	55,448	93,745	5,850	13,600	28,484	31,029	77,139	2,150	2,451	1,000
Ore 57	74,481	78,678	22,317	55,802	65,745	129.093	162,915	20,169	19.041	20,721
	38.264	727,388	81,373	257,122	584,428	709,818	473,615	85,836	177,942	140,742
R. L 30	09.851	111,398	28,800	24,700	32,000	40,400	69,660	390	2,503	_
	41,691	28,300	23,300	7,686	27,585	46,013	31,260	2.050	9,295	66,202
	17,690	15,680	27,283	2.126	11,296	2,890	17,687	1,210	1,200	38,318
	21,418	121,537	3,661	23,970	69,064	130,550	90,171	1,300	5.775	75,390
	02.032	963,702	220,721	205,061	352,341	487,819	812,875	62,237	97,276	
	88.361	221,285	23,989	4.061	20.208	23,524	86,461	5,120	3.713	_
	43,993	184,624	27,561	26,863	42,360	90,637	56,464	14,700	6,941	793.843
	64,720	243,774	134,199	52,162	58,872	200,303	285,479	24,956	6,529	58,446
	86.799	72,609	1,275	12.651	24.168	157,965	36,229	3.290	9,207	269,401
	64,522	555,756	10,959	124,090	302,223	292.368	247,200	52,882	26,519	52,52
	05.958	4,850	21,250	1,350	1,000	202,000	5,550	34,004	52,356	19.60
	79,780	27.765	29.020	21,375		9,070	49.125	_	17,351	
		30.375	4.299		35,095	10.700	6,998	1,783		90,975
Other' 5	90,157	9,429,476	2,707,086	13,160	6.073 7,877,802	10.700	10,928,480	The state of the s	2,900 1,435,620	13,869

<sup>(&#</sup>x27;) Includes all states and territories where less than three companies reported (Delaware, North Dakota, Vermont and Wyoming).

1,097 companies actually returning the questionnaire and do not cover the additional 150 companies whose production statistics were otherwise available. The total number of truck mixers or agitators operated by the 1,097 companies was 16,713, representing an average of more than 15 units per company. Proportioning plants were reported by 758 companies, who have 1.365 such plants in operation. Central mixing plants were reported by 440 companies, who have 633 such plants in operation.

Our survey indicates that there are approximately 14 mixers or agi-

tators for each producing plant. The participating companies reported 2,077 non-agitating units in operation, for an average of slightly less than 2 such units per company. Table 5 also includes similar statistics from our 1955 survey for purposes of comparison with the equipment in the industry the preceding year.

Table 6 presents, for the first time in our annual survey, data on electric motor horsepower capacity in the ready mixed concrete industry. This additional information was prepared in response to several requests from the industry and we hope you will find the data useful.

TABLE 6 ELECTRIC MOTOR HORSEPOWER CAPACITY IN READY MIXED CONCRETE PLANTS IN 1956

State	Number of Companies	Installed Horsepower	Number of Plants	Average Installed Horsepower Per Plant	Total Ready Mixed Concrete Production (cu. yds.)	Average Installed Horsepower per 1000 cu. yds. Produced
Ala.	14	1,360	28	49	808.802	1.68
Ariz.	5	1,964	11	180	442,709	4.48
Ark.	8	496	11	45	122.941	4.03
Calif.	65	16,993	210	81	9,585,520	1.77
Colo.	11	969	19	51	579,764	1.67
Conn.	15	1.042	22	47	763,670	1.36
D. C.	3	477	10	48	611,993	.78
Fla.	40	4.147	58	72	1,998,114	2.08
Ga.	14	1,001	22	46	370.158	2.71
Idaho	5	1,100	9	122	127,388	8.66
III.	51	4,614	73	63	2,934,574	1.57
Ind.	29	3,875	45	86	1,450,642	2.67
Iowa	53	2,300	68	34	763,132	3.01
Kan.	13	4,984	19	262	471.040	10.58
Ky.	14	802	16	50	386,450	2.07
La.	9	1.209	28	43	716,194	1.69
Maine	5	922	10	92	163,254	5.66
Md.	6	1,203	17	71	1,009,657	1.19
Mass.	18	2,856	37	77	1,540,370	1.85
Mich.	28	9.146	41	223	2,174,527	4.21
Minn.	15	1,593	24	66	560.511	2.84
Miss.	9	734	14	52	227,879	3.22
Mo.	17	2,413	34	71	1,118,180	2.16
Mont.	10	1.074	14	77	208,834	5.14
Neb.	4	908	9	101	411.061	2.21
N. H.	3	175	4	44	68.000	2.57
N. J.	12	1.640	22	75	781,508	2.10
N. M.	4	359	8	45	218.260	1.65
N. Y.	32	18.182	90	202	3,448,894	5.27
N. C.	15	1.097	22	50	522,204	2.10
Ohio	66	9.467	126	75	3,932,860	2.41
Okla.	9	416	14	30	255,448	1.63
	8	1,459	15	97	565,706	2.58
Ore.	54	6.136	72	85	1,644,057	
Pa.		671	9	75		3.73
S. C.	7				194,012	3.46
Tenn.	7	1,437	11	131	472,323	3.04
Texas	43	5.570	102	55	3,003,094	1.85
Va.	13	700	25	28	368,561	1.90
Wash.	25	4.182	46	91	999,914	4.18
W. Va.	10	765	15	51	307,848	2.48
Wis.	37	3,758	54	70	1,343,858	2.80
Alaska	3	445	5	89	105,958	4.20
Other <sup>1</sup>	13	1,014	23	44	661,101	1.53
Total	822	125,675	1,512	83	48,440,970	2.59

Includes all states and territories where less than three companies reported (Delaware, Nevada, North Dakota, Rhode Island, South Dakota, Utah, Vermont, Wyoming, Hawaii).

#### Precast Marble Slabs

(From page 20)

at the head of a row, are removed; the slabs are lifted out; then the mold is cleaned and reassembled. The next worker to come along mans a spray gun containing a special, company-developed, oil-base chemical compound. This is sprayed onto the wood to prevent the next slab from bonding to the mold.

Following this, a man wheels in a load of facing material - a special mix of pure white portland cement, water and a white Georgia marble aggregate. This is hand placed in rows along the length of the mold. Then the worker takes a small home-developed pneumatic vibrator and uses this to carefully spread the mix to a uniform depth of one inch in the bottom of the



# Pours for

by R. E. Walter

An unfamiliar sight to some of the onlookers has been the project in progress on the south bank of the ship channel at Corpus Christi, Texas.

South Texas Materials Company poured 2,642 tetrapods used in jetties off the Padre Island ship channel, a harbor project under construction at Port Mansfield, Texas, 85 miles away.

The company furnished about 150 tons of two-inch-aggregate concrete

wooden molds for the slabs.

Vibrator action in spreading and compacting the mix works the larger bits of marble aggregate to the bottom so that as little cement as possible will appear on the surface after the slab is stripped and finished. By use of the special vibrator, and by carefully grading and blending the different aggregate sizes, ranging from sand to a ½-inch maximum, Buehners is able to consistently achieve a uniform face on their product of 85 per cent or more actual aggregate.

After casting of the 1-inch-thick face has been completed, a sheet of steel reinforcing mesh, ½x4x4 inches, is placed over the upper surface (the mesh arrives at the plant in 8x12-foot sheets which are then cut to size). U-shaped anchor straps are hooked under and welded to the rods prior to the time the sheet goes into

the mold. Later, when the slabs are to be installed on the building's exterior, the anchor straps will be bolted to angle irons on the framework.

Immediately after the reinforcing mesh is placed, the slab is backed with a 1-inch-thick mix, composed of common grey cement, sand and gravel with a low water ratio. Another special, Buehner-developed, pneumatic vibrator is then brought into play to work the coarser material in and draw moisture up so the lift can be worked to a smooth finish by hand. Then, the cast is left to harden overnight.

Next morning when sides of the forms are removed, the casts, 5 feet 6 inches wide and in two heights, 6 feet 3 inches and 6 feet 6 inches, and weighing 25 pounds per square foot, are lifted by traveling overhead cranes and shuttled into the curing room. There, the green slabs are cov-

ered with burlap blankets and kept moist for seven days. In cooler weather, a periodic hosing of the burlap suffices; on hot days, an automatic mist spray is actuated.

At the end of the curing period, the slabs undergo a five-stage grinding and polishing process. The first step is a coarse grind to remove excess surface cement and expose the marble. Each successive step is with a finer tool to remove scratches left by the preceding stone. The company figures this operation at the rate of about 10 square feet per man hour.

The last pass over the slab surface is made with a felt buffer which gives a permanent polish to the slab's marble aggregate surface. Mr. Wilde, the production engineer, states that selection of an aggregate which would shine was one of the most important steps in production. The alternate was to coat the slabs with a wax compound which would have given them only a temporary luster.

Wilde also states that the superior quality of the finished slabs, made possible by Buehner technology, developed over a 30-year period of experience and research, gave them the nod over bids submitted by competing firms in the Denver area. Compressive strength of the Buehner slabs, he states, tests out at 7500 pounds per square inch.

Company semi-trailer rigs are used to haul the finished slabs to Denver, thus permitting delivery to the site without extra handling. The First National Bank Building, on which the slabs are being installed, was designed by Raymond Harry Ervin, Architect, Denver. Completion is scheduled by August 31.





# 2,642 Tetrapods

per day for the giant four-pronged jacks. Together the wave breakers contain a total of 27,104 tons of concrete. They were cast in three weight sizes—5 tons, 8 tons, and 16 tons. The 16-ton unit stands over 10 feet high and contains approximately eight cubic yards of concrete.

Contractors for the job, Elmer C. Gardner, Incorporated, Houston, Texas, decided at the outset to stockpile the tetrapods on a five-acre tract at Corpus Christi. The units were then transported by barge the 85 miles

to the jetty site off Padre Island.

The Gardner company solved a lifting device problem for the tapored-pronged units by designing and making their own out of basketweave cable and a metal ring. Casting forms for the units were constructed of metal in four identical pieces. Clamps held the pieces together, making possible rapid assembling and stripping. The forms, also, were designed and made at the Gardner shop.

#### Reprints Available

Since we have received requests for reprints of the article "Developing Professional Drivers" (CONCRETE—June, 1957), we have printed up a limited number of extra copies. These are available to ready mix producers and others in the industry at a cost of \$.05 per copy. The producers may wish to give a copy of this article to each of their drivers.

# Lightweight Aggregates

by WILLIAM GRANT

**Consulting Engineer** 

Conclusion of a
Two-Part Article

#### BY-PRODUCT AGGREGATES

CINDER AGGREGATES — Cinders are the residue from high temperature combustion of coal under forced draft in industrial furnaces. They consist chiefly of fused ash containing varying amounts of unburned coal or coke.

Clinkers and ash together comprise about 70 to 80 per cent of the total and are composed mainly of silica, iron, alumina, lime and magnesia in the form of oxides, along with sulphur compounds. The remaining portion of commercial cinders consists of unconsumed coal or coke.

CLASSIFICATION OF CINDERS — It may be well to define and classify the types of materials as follows:

 Coke. The residue containing more or less carbonaceous material in the form of coke, derived from hightemperature, forced-draft combustion of coal.

Clinker. That portion of the cinders which has been partly or completely fused during the combustion process. The clinker may be dense or more or less cellular.

Clinkers are formed from the fusion of the ash constituents of the coal. Type of coal and the temperature of burning have a decided effect on the strength of the resultant clinker.

Clinker obtained from the burning of anthracite coal differs from that obtained from bituminous coal, in that the former type is structurally weaker. This is due to the fact that the residue from anthracite coal is not as thoroughly fused as that obtained from bituminous coal, when burned under similar conditions.

Cinders from both types of coal are used in the manufacture of masonry units.

Coke cinders weigh approximately 55 pounds per cubic foot, and clinker, 70 pounds. Standard specifications require that cinders contain no more than 35 per cent of combustible material by dry weight.

Also, there should not be more than 0.45 per cent of sulphur as sulphide; nor more than 1.00 per cent sulphur trioxide as sulphate.

Physical Characteristics — The physical characteristics of cinders are more important in judging their suitability for aggregate purposes than are the chemical constituents. A quick method of evaluating the properties of cinders is to select a good representative sample of the

material, then transfer a small portion of the sample to a container and wash off all the fine contents by decantation, then spread out the washed sample on a flat surface and proceed to separate the clinker particles from the coke particles.

From this separation of the materials a good idea of the type of aggregate is obtained. The greatest objection to the use of cinders as an aggregate is their lack of uniform quality. However, where cinders are procurable from a source at which the combustion process is carefully controlled, a reasonably-uniform grade of material is assured.

Popping and Staining Characteristics of Cinders — In the selection of cinders, it should be borne in mind that there is a considerable difference between the residue of combustion from a power producing plant where selected coals are generally used and the cinders obtained from heat-producing plants.

(a) Popping: A characteristic of some cinders of the latter type is that they may contain small particles of free lime. The presence of such lumps causes the objectionable feature of popping.

In the general run of clinkers, the lime is fused with the silica and alumina of the ash to form inert compounds. Small lumps of lime in the clinker may remain partially hydrated or partially combined on the outside, leaving a nucleus of calcium oxide surrounded by a dense shell of hydroxide, carbonate, or silicate. When moisture penetrates this shell and hydrates the calcium oxide, "popping" may take place. This condition is similar to lime spots in a clay brick.

(b) Staining: Another objectionable feature which confronts the manufacturer of cinder block is that of staining. This condition is brought about by the more finely divided iron compounds which escape the initial separation treatment. In processing cinders for aggregate purposes, most operators are satisfied if only the "tramp" iron is removed by subjecting the material to magnetic separation. Where additional separatory measures are taken, it is surprising to note the volume of finely divided iron compounds which can be removed along with a portion of the fine particles of the cinders. To discard this volume of ostensibly good material, collected over a day's

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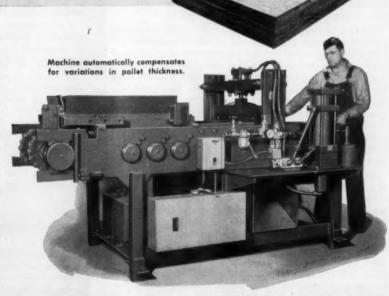


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run, may seem a wasteful practice. Investigation has proved, however, that such material is fit only for the dump. If a manufacturer is really interested in producing units as free as possible from such stain producing defects, time spent in testing the cinders will amply reward him for his trouble.

The Portland Cement Association has done considerable development work on this subject and publishes a pamphlet entitled Simple Method for Detecting Substances in Cinders Which May Cause Popping and Staining in Masonry Units. This pamphlet sets forth in a clear and concise manner the operational details for conducting the tests. See also ASTM C330-53T.

(c) Tarry spots: A troublesome feature which manifests itself periodically is the presence of dark tarry spots which appear on the surface of the units. Even when the units are broken in testing, spots are also apparent throughout the internal structure. Whether this condition is produced by some physical characteristic of, or through the improper burning of the coal is not easily determined. These pockets, however, are found only in the coke residue from the combustion process. There is not much that can be done regarding this objectionable feature. Even painting fails to hide the defects in the units. The logical course to pursue is to separate the worst units and exercise judgment in their disposition.

Weathering the cinders is recommended as a partial cure for some of these detrimental features. Many manufacturers stockpile the cinders as they are received, then allow them to weather.

A better course would be to process the material as soon as it is received and then stockpile the prepared aggregate. Weathering the smaller particles of aggregate would be more advantageous. Besides, in the event of unforeseen difficulties arising in the crushing plant, necessitating a lengthy shutdown, block manufacture could proceed at a normal rate by drawing from the supply of processed cinders.

PREPARATION OF CINDER AGGREGATE — One advantage of cinders used as an aggregate in block manufacture is that all the cinder mass, treated only by crushing, can be used. To obtain the maximum compressive strength, careful grading of the aggregate is necessary.

WATER CONTENT OF RAW CINDERS — The details of processing cinder aggregate into blocks is somewhat different from that used for the manufacture of gravel-sand aggregate units. Usually half or more of the necessary mixing water is present in the cinders, as received from the original source. When cinders are stockpiled, the moisture content will vary considerably from time to time. Cinders have a strong affinity for water, and dry cinders especially so. Thus, if too dry a cinder is being processed, the cement-water paste, instead of exerting its adhesive qualities on the surface of the particles, may be sucked into the interstices and cease to serve as a binder.

In the average cinder block plant, too little attention is given to the determination of the water content in the cinder just before it is used. Only that portion of the water added at the mixer is measured and this generally in a perfunctory manner. Little thought is given to the amount of water actually contained in the cinders.

Experience shows that where insufficient water has been used in the mix, the units will present a dull gray color and dry textural appearance with incidental lower compressive strengths. Units prepared under proper conditions as to water content show a good "water web" induced by the drag on the cement paste during stripping.

Much depends, however, on the type of machine on

which the units are made. Certain types do not permit the use of "wet" mixes; others do. It is best to carry a mix with the maximum amount of water, short of producing slumping of the units as they come from the machine.

The results of experimental and actual plant operations compared with each other would indicate that an absorbed water content ranging between 11 and 15 per cent by weight of dry material is about correct for the general run of cinder aggregate.

Proportioning Cinders — The variable nature of cinders as an aggregate presents a problem relative to their proportioning.

BATCHING BY WEIGHT — If the aggregate is to be measured by weight, two variables must be considered in order to obtain uniform concrete.

The variables involved are moisture content and specific gravity of the material, which must be corrected. If accurate quantities of aggregate are to be delivered to the mixer, the moisture content of the cinders should be determined periodically.

In order to satisfy the natural absorptive properties of the cinders, an endeavor should be made to maintain the water content of the material between 11 per cent and 15 per cent before delivering to the mixer.

The specific gravity, or weight per unit volume, varies considerably depending on the structure of the cinders—whether they are predominantly coke or hard clinker. For this reason, it may be necessary to make frequent changes in the batch weights so as to obtain uniform quality of product.

BATCHING BY VOLUME — In volume batching, the factor of specific gravity may be disregarded.

Tests have shown that within a range of from 10 per cent to 30 per cent of moisture content in the cinders, the bulking factor remains reasonably constant at 25 per cent. This characteristic may also be disregarded.

Where the moisture content of the cinders falls below 10 per cent, the bulking factor may vary considerably; in which case, the mix should then be calculated on a dry volume basis, and the necessary corrections made.

These observations with respect to batching by weight and by volume also apply to other lightweight aggregates.

Coke Breeze — Coke breeze is a cellular product obtained by screening metallurgical or household coke. It is composed chiefly of combustible matter with a small percentage of inorganic material known as ash.

The use of straight coke breeze as an aggregate in concrete block is rather new in this country, hence not very much technical information is available. Coke breeze should be free from the deleterious substances that make so many cinder aggregates unsuitable, especially from the point of iron staining.

The grading of breeze varies, depending on the locality from which it comes, but may be considered as the fine screenings from crushed coke which pass a ½ or ¾ in. screen opening.

Breeze obtained from metallurgical coke is stronger than breeze made for household furnace use. Units made from coke breeze have about the same weight as cinder units.

If the use of coke breeze as a lightweight aggregate is contemplated, units from trial batch mixes should be thoroughly tested for volume change characteristics after repeated wetting and drying tests have been conducted. The American Society for Testing Materials limits the combustible content of cinders to 35 per cent maximum. Since coke breeze contains from 75 to 85 per cent com-



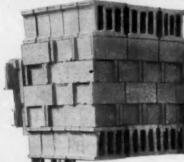
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truck-man DIV. OF THE KNICKERBOCKER CO. 570 LIBERTY ST., JACKSON, MICHIGAN bustible matter, it would seem advisable, therefore, to ascertain the fire rating of masonry units, made from this material, before proceeding with extensive manufacture.

BLAST FURNACE SLAG AGGREGATES — Blast furnace slag aggregates in the several forms, at present marketed, offer an excellent material for the production of masonry units.

Definition of Slag — According to American Society for Testing Materials, designation C125-48, blast furnace slag is defined as "The non-metallic product consisting essentially of silicates and alumino-silicates of lime and other bases, which is developed simultaneously with iron in a blast furnace."

Types of Slag — Three general types of slag aggregate are produced. These types are known to the trade respectively as air cooled, granulated and expanded. Each type of product is characterized by the manner in which the slag is cooled.

1. The air cooled type is formed through slow cooling in dry pits, after which it is crushed and screened. In the trade it is termed crushed and screened air cooled slag.

Granulated slag is a cellular product produced when molten slag is suddenly chilled by contact with a jet of water.

In this process, one or more high pressure jets of water impinge on a stream of molten slag. The product of this operation falls into a pit containing water. Granulation takes place partly in mid-air and partly in the water pit. For marketing it is screened to remove oversize pieces.

 Expanded slag is a lightweight product formed when molten slag is treated by applying a controlled amount of water.

This type of product may be produced by mechanical devices, or by direct application of controlled amounts of water to the molten slag by means of water jets, with or without the addition of compressed air. The amount of water needed is less than that required for granulation, consequently, a relatively dry cellular lump is formed possessing a small cell structure.

The product of this operation, is then crushed and screened to lightweight aggregate sizes. Large amounts of expanded slag are produced by the pit process. This form of lightweight aggregate has become very popular, since the conventional eight-inch units produced from this aggregate weigh only about 30 pounds compared with the 40 pound weight of the heavy concrete units.

Trade Names — Expanded slag is marketed under such trade names as Celocrete, Superock, Waylite, Enslite and other designations.

REMOVAL OF IRON — In the conveying system magnetic pulley separators are used to remove the metallic iron. Generally only very small quantities of free iron are present. Experience has shown that under modern conditions of slag processing, this iron presents no insuperable problems.

Physical Properties — One outstanding advantage in using expanded slag in concrete products is that, because of its cellular structure, it possesses a lower heat transmission coefficient and a greater fire resistance quality than concrete made from heavy aggregates.

With mixes made from expanded slag, it is most desirable to have the aggregate properly wetted before the cement is added. It should be wetted with about 75 per cent of the total required mixing water, either in the stockpile or in the mixer before the cement is added. After thoroughly mixing the aggregate, the cement and the balance of the required water should be added and the mixing operation completed.

32

MIXING PROCEDURE — The wet mixing period is especially desirable where expanded slag is used. With this treatment, the surface cells are filled with water, and, when the cement is added, it remains on the surface of the particles where it is used to best advantage.

A good rule to follow in all cases is to use the maximum amount of mixing water necessary to produce a "water web" or "sheen" on the surface of the units without causing the block to slump.

WEIGHT OF UNITS — The weight and strength of concrete units are influenced by the type and grading of the aggregate as well as the quantity of water used and the cement content of the the mix.

The weight of slag block made from the same aggregate may vary in different manufacturing plants. The factors which influence this condition depend on the type of machines used, the volume of core space, and the concrete mix.

The weight of modular 8-inch units with a nominal wall thickness of 1 1/4 inches and a core volume of approximately 45 per cent, are generally within the following range:

Type of Slag Unit	Weight, Pounds
Expanded Slag	25 - 33
Granulated Slag-Blends	30 - 38
Air Cooled Slag	35 - 43

Recommendations — For best results in processing slag block, the following points should be observed:

- 1. Slag, because of its absorptive qualities, should not be mixed dry with cement for masonry unit mixtures.
- Approximately 75 per cent of the required water for a batch of concrete should be mixed with the dry aggregate before the cement is added.
- 3. Concrete mixtures should be made as wet as possible consistent with desired textural features.
- 4. A fineness modulus of approximately 3.40 to 4.00 is best for general purpose units. Acoustical units may have a higher fineness modulus. Texture is controlled by the ratio of fine to coarse aggregates used in the block mixture.
- 5. Length of mixing time is important as it affects the strength and other physical characteristics of the units.
- 6. In general, units cured for a period of two hours in low pressure steam reaching a temperature of 170 degrees Fahrenheit and followed by a slow soaking and cooling period in the damp atmosphere of the kiln will be satisfactorily cured. The units should be stockpiled for drying prior to use.
- For good block textural results, aggregate should be proportioned to approximate a fineness modulus of 3.70.

SAWDUST AGGREGATE — Sawdust alone has been tried out as an aggregate for load bearing units by many experimenters. The strength results on block have generally, been so low as to preclude their use for this purpose.

Because of the varied physical characteristics of sawdust obtained from different types of wood, uniformity in strength of the concrete is difficult to attain for these reasons:

- 1. The uniform size of the particles.
- The presence of chips or lumps which fail to pass a (Continued on page 34)

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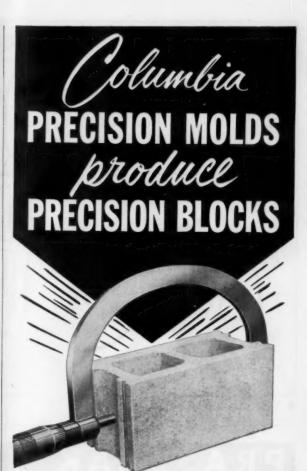
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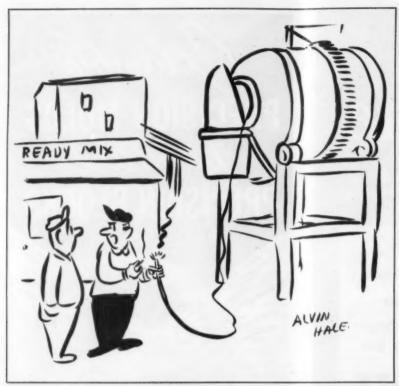
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Columbia molds are constructed so that many different types of blocks can be made in each mold simply by adding or changing parts.





• Yehl . . . . . Someone forgot last night.

#### Lightweight Aggregates (From page 32)

#4 screen nor should it be so fine that it will all pass a #14 screen.

3. The fact that some wood (cedar for instance) may contain as much as 2% tannin (tannic acid) which is considered detrimental to concrete.

4. The variable length of time of set of concrete depending on the coarseness or fineness of the sawdust.

5. The presence of appreciable amounts of bark in the sawdust exerts a retarding and weakening effect on the concrete.

Sand as an addition to a mix of equal parts, by volume, of portland cement, sand and fine wood sawdust will produce, after a few days' curing, a concrete strong enough to hold nails. Sand tends to produce workability and strength in the mix.

Expansion or contraction features must be considered if the concrete is to be exposed to weathering conditions.

In view of the variable behavior of the different kinds of sawdust it is advisable to experiment with the material before proceeding with any large scale use of this type of concrete.

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- \* MAGNETIC FORK OFFBEARER



COMPLETE AS SHOWN READY TO GO-EQUIPPED WITH 8" MOULD FRONT END FEEDER & MAGNETIC FORK OFFBEARER

\$11,000

MODEL 20, TWO-BLOCK MACHINE, AS ABOVE \$8,500

Write for Details

PRASCHAK MACHINE CO. MARSHFIELD, WIS.

Factory to You Prices

# WAL-LOK (MORTAR JOINT 6 POINTS of SUPER



1 WAL-LOK is Deformed, Knurled and welded without impairing tensile strength— Assures positive bond for full length of structure.

2 Cross Bars hold WAL-LOK up—for complete bond with mortar all the way around.

3 WAL-LOK is packaged (25 twelve foot sections per bun-dle) for easy handling, fewer splices, less waste.

4 SuperStandard has 8 ga. side rads—more bonding sur-face, greater tensile strength than 9 ga. and is the mini-mum recommended by the National Bureau of Stan-

5 WAL-LOK and only WAL-LOK gives the same bondage per square inch of surface with SuperStandard grade as with the Extra Heavy grade.

6 WAL-LOK is manufactured in one factory—quality con-trol is strictly maintained— immediately available, every-where through leading dis-tributors and dealers.



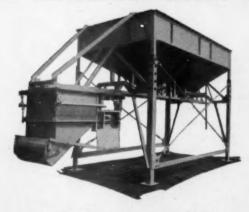
WRITE FOR YOUR COPY OF THIS 4-PAGE FOLDER TODAY ! !

ADRIAN PEERLESS, INC. 1433 E. Michigan . Adrian, Michigan



## WINSLOW BINANBATCH

COST SAVING EQUIPMENT-FOR USE WITH 10S-11S-14S-16S MIXERS-AND AT CON-CRETE PRODUCTS AND PIPE PLANTS



### OVERHEAD BIN CAPACITY 23 OR 40 TONS

Binanbetch can batch and discharge into one or two mixers. Hundreds of users of this equipment can tell of the cost saving advantages of the Binanbatch.

> We offer batching bins for ready mix business at low investmen

WRITE FOR COMPLETE DETAILS

### WINSLOW SCALE COMPANY

P. O. BOX 1198

TERRE HAUTE, IND.



MARACONS are water-reducing admixtures for concrete. They promote more complete hydration of cement particles and permit a substantial reduction in the unit water content without loss of plasticity or consistency of the mix. This means —

### A. Lower Concrete Costs: -

- 1. Attain higher strengths without increasing cement content of a mix.
- 2. Maintain slump and workability at low W/C ratios.
  3. Permit economical redesign of conventional con-

### B. Better Quality Concrete: -

- Minimize shrinkage in concrete before and after hardening, due to lower water content and more complete hydration of cement.
- 2. Achieve greater bond strength and higher dura-bility factor.

The MARACONS also reduce water requirements in concrete mixes containing pozzolanic materials.

Write for File No. CO-87. You'll receive additional information including results of exhaustive independent laboratory tests and actual field experience.



MARATHON Corporation CHEMICAL SALES DEPARTMENT

ROTHSCHILD

WISCONSIN



### He Should Know

There's little question but what it's the responsibility of the manufacturer (and his representatives) to inform the buyer, and educate the buyer, in regard to product use—its limitations and its advantages. This is as true in the case of the builder as it is with any other group of buyers.

A busy home builder frequently doesn't have the time either to hunt out, from among the array of new products, those that are applicable to his production, or to investigate new uses of older products. Therefore he continues to use just those that fit his needs.

One of the prime jobs of the salesman enters the picture here. Likely, his product won't be tried unless he at least introduces it to the builder.

But, of course, effective salesmanship goes beyond just the introduction. Continuing education is necessary—particularly when it comes to new developments.

### **Product Limitation**

As far as the builder is concerned, one of the essential things he needs to know is the product's limitations. Of course, he doesn't want to spend money just to lose it, or build a house which will not sell.

A salesman who points out these disadvantages in a matter of fact presentation should obtain more good will than the salesman who proposes to use the builder as a guinea pig. Essential research should be undertaken by the manufacturer, and the results of this research presented to the builder. That part of the research undertaken by the builder should be the minimum.

### He May Buy If ....

One of the considerations near the top of the list in a builder's decision

to buy is the question of whether his men, or the subcontractor's, are capable of handling the product. With an older, well-known product, this isn't so much a question. But if it's a new use, or a little bit tricky, what then? Many builders feel it's the manufacturer's responsibility to train the men handling the product. With some manufactured products this amounts to just training the men in correct installation techniques. With others it should cover servicing as well.

### See and Sell Them Both . . . .

Although the architect may be the one who designs the structure, and specifies the materials that go into it, builders feel that architects are not close enough, in many instances, to the cost aspects. For this reason, the builder likes to be contacted and told of new products.

The builder who has an architect on his staff works with him closely to be sure ideas are within reason financially. But when the architect is independent, the builder, except in cases where the architect has complete control of the job, reserves the right of veto power. This is certainly the case when his own pocket book is concerned.

### Home Buyers Like It?

Important as these reservations are, the builder, in thinking of new utilizations of products, also tries his best to consider the likes and dislikes of his possible customers. Right choices help with the saleability of the house.

If the new product, or new design, has been tried in other locales, knowledge of other peoples' reactions will help the builder to decide whether the new feature will fit into his own projects.

If testimonials aren't available, results of surveys and public opinion polls will help in making the decision.

An exhibition home which utilizes the new feature is an excellent place for the manufacturer to obtain firsthand knowledge of the public's reaction to his innovation.

For the manufacturer whose product is behind the plaster, the wall of the model home can be cross-sectioned. A salesman should be on hand to answer questions.

Builders also use the model home as an information-gathering spot. One builder reported, "From the conversations of the visitors, we obtained some pretty frank expressions of opinion on our homes and the products of manufacturers used in them." Based on the results of the survey, he constructed a number of exhibition homes.

### Result, A Sale

A co-operative venture of this sort serves a dual purpose: It provides an opportunity for the builder and his sales staff to learn selling points offered by each feature. For the manufacturers' representatives, it becomes a training ground for discovering the motivations of builders and the buying public. The results of such projects will become a permanent part of the sales talk, and will further successful business dealings with builder-buyers in the future.

### Editor's Note

Last month's Sales Clinic reviewed a portion of the information presented in the pamphlet "Trends in Builder's Buying Habits." Some of the other salient points in this provocative booklet are discussed above in concluding the review.

# ${f A}$ re you getting ALL the Block Sales out of each job?

When a prospect decides to use concrete block for the foundation and exterior walls of his new house don't overlook your opportunity for extra sales. Many producers boost volume by promoting block for additional uses in home construction.



One architectural trend, for example, is the use of concrete masonry for interior walls and partitions. Showing prospects how such walls

add real beauty and charm to houses can add to your profits.

The growing popularity of concrete

block joist floors affords another opportunity to build sales. Every prospect is interested in floors that can't squeak, sag or burn.

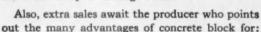




There's rustic charm in a concrete masonry fireplace. Like all block construction it can be painted any of a variety of attractive colors with portland cement paint.

Concrete masonry garages of-

ket for your block. They are weather-resistant yet economical to build and often provide space for a workshop or storage room.



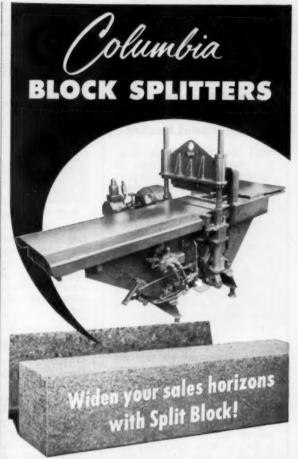
## Garden Walls • Outdoor Barbecues • Terrace Walls Back-up for other Masonry Materials

Write for free literature on these or other uses for concrete masonry, sent only in U.S. and Canada.

### PORTLAND CEMENT ASSOCIATION

Dept. A8-14, 33 West Grand Avenue, Chicago 10, Illinois

A national organization to improve and extend the uses of portland cement and concrete through scientific research and engineering field work



Split block, with its tremendous variety of textures, colors, sizes and shapes, opens new avenues for increased profits through expanded sales in residential and commercial construction A Columbia fully-automatic block splitter will vastly expand your sales potential through the number and types of units you can offer your customers throughout the construction field.

The new Columbia fully-automatic block splitter is designed for continuous output at high speed. With an extra-long takeaway table, it will produce split block as fast as the operator can load the receiver. It handles either lightweight or regular concrete block up to 8 inches in height and 24 inches in length.



# COMMEN

### from the BUTLER ENGINEER

### ... of "Stenographer's Fanny"-an **Occupational Hazard**

NOT that your Butler Engineer has made a study of "stenographer's fanny" - but after sitting in planes for thou-sands of miles, hour after hour lately, the weary, stiff and sore muscles in my own fundament - make me think that stenos seated for 8 hours a day must suffer similarly. Not only that, but if I put a tape measure around that anatomical area I'm sure I have gained a good 2 inches. I have no data on stenos, so further the deponent saith not.

What occasioned all this air travel? Well, a great many people do follow our suggestion to "call in the Butler Engineer."

I'm happy about it. Very! You see, to get full advantage for a Ready-Mix operator in-stalling a new plant—field engineering, the evaluation of terrain, site location, transportation and a host of other factors by the Butler Engineer often means a much sweeter profit for the Butler customer. So I travel.

By the way, we are bringing out what is probably the world's most portable Ready-Mix plant which provides production that can match that of good sized permanent plants. More about this later. It's important!

Just to add another to the long succession of plaintive pleas your Butler Engineer has been uttering for years, please Mr. Ready-Mix operator, put in enough compartments in your new plant. It always is so easy at the start.

Take good care of yourself.

BUTLER BIN COMPANY WAUKESHA, WISCONSIN

### MEN IN MOTION

### LeTourneau-Westinghouse Co.



D. H. Mitchell as Eastern Sales Manager for the LeTourneau-Westinghouse Company has been announced by officials of the firm at its Peoria, Illinois headquarters.

Appointment of

Mr. Mitchell replaces James A. Vincent, who recently resigned to become Vice President and General Manager of Adams Construction Equipment Company, a new LeTourneau-Westinghouse distributorship being organized in the state of

### Koehring Company

Arthur V. Cossens, field service manager for Koehring Company, Milwaukee, Wisconsin, has been named assistant sales manager, according to J. E. Chadwick, sales manager. Mr. Cossens started with the Koehring organization in 1945 and was promoted to field service manager in 1955.

Succeeding Mr. Cossens as field service manager is George E. Schmidt who started with the company in 1951. He has held the position of district sales representative since 1953.

### Frank G. Hough Company



Beyerstedt, Ex-ecutive Vice-President, Engineering, The Frank G. Hough Co., Libertyville, Illinois, has just announced the appointment of Mr. Jules Laegeler as

Mr. R. L.

J. C. Laegeler the company's new chief engineer.

### Soiltest, Incorporated

Thomas J. McNeil has been appointed eastern manager for Soiltest, Incorporated, Chicago. He will work out of the new eastern office, located at 60 E. 42nd St., New York

### Perlite Institute

Richard J. O'Heir has been promoted from technical director to secretary-treasurer of the Perlite Institute, New York, N. Y.

David W. Gesler has joined the Institute as its new advertising and promotion director. Announcement was made by the Institute's outgoing administrative secretary, Richard S. Funk, who is joining Great Lakes Carbon Corporation.

### Steams Manufacturing Company

Stearns Manufacturing Company, Incorporated, of Adrian, Michigan, an-nounces the recent appointment of E. P. Evans to their sales staff. Mr. Evans will represent the company in the E. P. Evons states of Tennessee, North Carolina and South Carolina.



## Food Machinery and Chemical

The Florida division of Food Machinery and Chemical Corporation announces the appointment of Ralph E. Davis as sales engineer covering the midwestern territory for Form-Crete prestressed concrete casting forms.



The sales territory includes Missouri, Kansas, Iowa, Nebraska, South Dakota, North Dakota, Minnesota and the eastern part of Colorado.

### Universal Atlas Cement

Sales staff appointments have been announced by the Universal Atlas Cement Company.

Elbridge G. McConnel, Jr., is the assistant sales manager of the Dayton sales territory.

Lloyd L. Schwarz was named assistant sales manager of the St. Louis district.

# NEWS from the Manufacturer

METHODS MATERIALS EQUIPMENT TOOLS

### Noble 240 Delivers 7-Yard Batches Every $2\frac{1}{2}$ Minutes

Cement and aggregates are batched at the same time in a new version of the Noble 240-ton batching plant, manufactured by the Noble Company, 1860 Seventh Street, Oakland 20, California.

Through a system of multiple

scales, the batching cycle is completed and seven-yard batches delivered every 150 seconds. Smaller batches down to two yards are delivered in correspondingly shorter periods. The operation is either automatic or semi-automatic.

The factory-assembled center section, complete with all batching components and controls, is now housed



### Concrete and Wood Cattle Guard Eliminates Gate, Yet Keeps Beasts From Straying. Franchises Open.

Cattle Guards, P.O. Box 1824, Montgomery, Alabama has produced a new concrete pre-fabricated cattle guard, now being manufactured by some ten Concrete Product Manufacturers in Alabama, Georgia, and method of utilizing waste concrete. A single beam requires about 4.5 cubic feet of concrete and no finishing whatsoever.

Designed and patented by an Alabama cattleman, this unit retails



Florida. It is selling well as a gate replacement for farmers, ranchers and suburbanites, the manufacturer states.

The grid, formed by the precast concrete beams and the pressure treated hardwood treads, provides such unsure footing for livestock that it discourages their passage, and the unit is strong enough to support even the heaviest vehicles. Manufacturing this product gives producers a

for about half the cost of building a conventional cattle guard of equal size, permanence and efficiency.

Right to manufacturer this new product is franchised to concrete product manufacturers and readymix plants. Each is given an exclusive sales area. Metal forms and the treated treads can be obtained from the liscensor at reasonable cost. in a rigid "A" frame, providing accessibility for operator. Distance between supporting columns has been increased to allow greater clearance for trucks. Aggregate bins with 240-ton capacity are available with from two to six compartments. The plant is designed to accommodate two tilting type mixers.

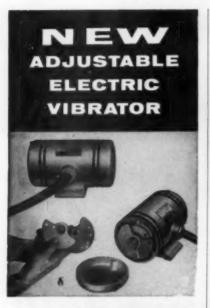
According to the manufacturer, the Noble 240 is rapidly assembled and disassembled and has the portability of plants under 150 tons.

### Ready-to-Use WRDA Acts As Water Reducing Agent

WRDA, a ready-to-use, catalyzing type, liquid water reducing agent for concrete, has been introduced by the Dewey and Almy Chemical Company Division of W. R. Grace and Company at Cambridge, Massachusetts.

WRDA reduces the amount of water needed in concrete by an average of 15 per cent by plasticizing the concrete mix. According to the manufacturer, in typical 28-day tests this water reduction increased concrete strength as much as 30 per cent.

The agent can be added to concrete without a previous mixing operation, can be stored, and is controltested before shipment to assure uniformity of effectiveness. More information on this product is available from the company at 62 Whittemore Avenue, Cambridge 40, Massachusetts.



# NO WEIGHT

A brand new silent electric
vibrator that lets you
vary the force of vibration
without complicated
weight changes, The Cleveland
Vibrator Company now offers
adjustable cams, permitting
a change of vibrator force
over a 3 to 1 range
in a matter of seconds.

With this new bin vibrator you can adjust vibration to exactly fit your bins and type of material you are handling.

No problem when you use a bin for different materials; just change the weight a notch.

It's absolutely silent too.

Write for detailed information.

Air or Electric

Portable or Permanent Silent or Standard



2708 Clinton Avenue . Cleveland 13, 0.

### Spillman Mold Produces Curbing or Trim for Lawn

R. L. Spillman Company has molds for a concrete, scalloped edge "Dixie" Lawn Trim, available from



the company at Box 534 Station G, Columbus, Ohio.

Main features of the product are, according to the manufacturer: 1. there is room on the trim for a wheel and a portion of the blade of a lawn mower, and 2. it fits in a trench six inches wide by one and one-half inches, deep, flush against the sidewalk or driveway with units flushend to end. The unit is sized at 36 × 6 × 5½ inches. Dividers can be ordered with the molds.

### GE Unit Supplements Any Standard Two-Way Radio

A new transistorized power supply for two-way radio communication equipment has been developed by the General Electric Communication products department for use in the construction, concrete and other industries.

The unit replaces the receiver portion of the mobile power supply. Be-



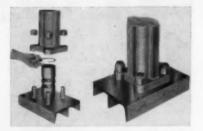
cause most two-way radio units use vibrator power supplies, the new transistorized power supply reduces the need for frequent replacement of vibrators.

Designed around a printed wiring board, the unit measures 3½ inches wide, four inches long and 1¾ inches deep. It weighs 12 ounces and may be mounted on the front exterior of a standard General Electric two-way radio case. In other units, it may be mounted wherever it is most convenient. It may be used with any standard make of mobile equipment using a 12-volt power source in the 25-54, 144-174, and 450-470 megacycle bands, regardless of manufacturer.

More information on the new transistorized power supply may be obtained from General Electric, Communication Products Department, Syracuse, New York.

### Lightweight KO Vibrator Simplifies Installation

The Cleveland Vibrator Company of Cleveland, Ohio, is marketing a new air operated vibrator, called the



type KO. It has two parts, plus an optional base. A steel piston, two inches or four inches in diameter, is housed in a cast aluminum or semi-steel cylinder block. The whole assembly, which weighs either 60 or 79 pounds according to the piston diameter, is bolted directly to the bin, or to a base plate welded on the bin.

Reduced weight of the KO simplifies its installation, especially when the vibrator is being mounted some distance off the ground. It is used to move all types of bulk materials, including cement, sand and gravel, through bins, chutes, hoppers and tubes.

### New Data-File Unit Is Announced by Plan Hold

Plan Hold Corporation, 5204 Chakernco Street, South Gate, California, has added the Data-File to its line of filing equipment. Mounted on the standard Plan Hold frame are twelve aluminum binders that keep, as a unit, blueprints and data sheets for each job. Mutilations are eliminated.



CLEANING TOOLS ELECTRIC OR PNEUMATIC

RUST

Powerful rotary chipping action completely removes stubborn accumulations from iron, steel, brick, concrete, etc. with less effort. Adjustable depth shoe for controlling depth of cut. Renewable cutter heads. Two sizes in both electric and pneumatic models. Lightweight.

Write Dept. 15 for the money-saving facts.

AURAND MFG. & EQUIP. CO. 1210 Ellis St. • Cincinnati 14, Ohio





Throughout the nation leaders in the building industry are depending increasingly on Dur-O-waL, the masonry reinforcement of proven performance. This high quality, custom-fabricated reinforcement sets the standard for the

TRUSSED DESIGN

BUTT WELD

DEFORMED RODS

## DUR-O-WAL

Rigid Backbone of Steel For Every Masonry Wall

Dur-O-wal Div., Cedar Rapids Block Co., CEDAR RAPIDS, IA. Dur-O-wal Prod., Inc., Box 628, SYRACUSE, N. Y. Dur-O-wal of III., 119 N. River St., AURORA, ILL. Dur-O-wal Prod. of Ala., Inc., Box 5446, BIRMINGHAM, ALA. Dur-O-wal Prod., Inc., 4500 E. Lombard St., BALTIMORE, MD. Dur-O-wal Div., Frontier Mfg. Co., Box 49, PHOENIX, ARIZ. Dur-O-wal, Inc., 165 Utoh St., TOLEDO, OHIO



Emeri-Crete Kure both cures and hardens any concrete surface in

just one simple operation! It's easier and faster to apply; contains no resin, paraffin, or wax; does not gum up your equipment. It eliminates entirely the necessity and cost of a separate "dustproofing" treatment. And because it covers better and goes further than conventional compounds, Emeri-Crete Kure gives you tremendous savings. Specify Emeri-Crete Kure for your next concrete floor installation and see the differences for yourself. Write for further information and recommendations on your flooring problems.

## WALTER MAGUIRE COMPANY, INC.

60 E. 42nd Street . New York 17, N. Y.



### model CT-900

CONCRETE TESTER
CAPACITY
300.000 POUNDS

For Laboratory and Plant use in tests of Blocks, Beams, Cubes or Cylinders.



### model CT-711

CAPACITY 200,000 POUNDS

For Job-site, Plant or Laboratory testing of Cylinders, Blocks, Beams and Cubes.



# ·

## model CT-386

KELLY BALL

The Kelly Ball is a new direct method of testing concrete consistency at the jobsite either from the batch or in forms.



DYNAMIC SIEVE SHAKER

A modern, new type Laboratory Shaker that insures quick and complete sieving of aggregates.



Many other units of Engineering Test Apparatus for Concrete Testing are available. Soilest's New Catalog covers completely all testing equipment and occessories used in this field.

Illustrated Bulletins describe Apparatus shown above.



4711 W. NORTH AVE., CHICAGO 39, ILLINOIS

EASTERN OFFICE

60 EAST 42nd ST., NEW YORK 17, N., Y.

### Portable Con-Vay-It Unit Handles Bulk Materials

The American Conveyor Company has added to its Con-Vay-It line a portable troughed belt conveyor unit



to handle bulk materials, for loading and unloading trucks, and for stock piling.

Small boom cross-section area permits passage through restricted openings. Standard power mounting is at the foot-end of the conveyor for weight balance; however, head-end power is available.

The conveyor comes in standard lengths of 20, 30 and 40 feet with electric motor or gasoline engine power. More information is available from the manufacturer at 2133-37 South Christiana Avenue, Chicago 23, Illinois.

### Columbia Machine Offers New Additive for Concrete

A plasticizer marketed under the trade name of Columbia C-202 is now being distributed by Columbia Machine, Vancouver, Washington, through the firm's representatives.

Columbia C-202 is manufactured for Columbia Machine by Wyandotte Chemical Company at Wyandotte, Michigan, and is packaged in 85-pound, moisture-resistant fibre drums suited for storage in various climates. Representatives of Columbia Machine, or the company itself at 107 South Grand Avenue, Vancouver, Washington, can supply further information.

### Repairs, Rebuilds Torn or Broken Conveyor Belts

A new national service for repairing and rebuilding large conveyor belts has been announced by Conveyor Belt Service, 324 West Michigan Street, Virginia, Minnesota.

The company reports that belts costing \$5 to \$100 a foot have been successfully rebuilt and returned to service in good condition after end-to-end rips, transverse cuts, impact breaks, cover tears and edge injuries apparently had headed these belts to the rubbish heap.

Steps in the repairing process are:
1. preliminary inspection to determine condition of the belt and extent of damage; 2. determination of moisture content of belt and drying period in oven; 3. repairs made by hand on belt unrolled on long table;
4. vulcanizing and curing in hydraulic, steam heated belt press; 5. final inspection. An initial inspection for estimation of cost can be carried out in plants at the request of managers.

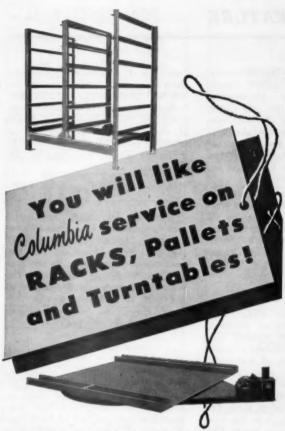
### Private Line is Possible Even on Two-Way Radio

Plants eligible to operate two-way radio in the 450-470 megacycle frequency band can now install radio equipment that does not transmit communications of other users operating on the same channel. Receivers on the Motorola Private Line radio open up for listening only when the proper tone is transmitted. The operator hears only those messages of radios in his system. Accord-



ing to the manufacturer, operator fatigue is eliminated, and the chance of missing or misunderstanding messages is minimized.

New circuitry of the Private Line unit eliminates the normal noise burst at the end of each transmission from both mobile and base station receivers, and safeguards against annoying pop appearing at the speaker. More information is available from Motorola Communications and Electronics Incorporated, Department PL, Technical Information Center, 4501 West Augusta Boulevard, Chicago 51, Illinois.



RACKS - Columbia Heavy-Duty Standard racks can be shipped to your plant within a few days after your order is received. Or, our engineers will custom design racks from your blueprints or measurements to fit your special plant needs without obligation.

PALLETS - In most areas throughout the country you can get overnight delivery of Columbia Standard Steel Pallets in 1/4" x 18" x 20", or 5/16" x 181/2" x 26" sizes.

TURNTABLES -Available in one, two, or three rack motor-driven "push-button control" turntables. Also available in manual, semi-portable and fixed position combinations. Quick delivery anywhere.

### Prompt Engineering Design Service, Fast Delivery

... made possible through district offices and branch manufacturing plants and warehouses strategically located throughout the country.

Home Offices: 107 5, Grand, VANCOUVER, Wash. Factory Branch and Warehouse at Mattoon, Ill. Service and Parts Warehouse at Burbank, Calif.

MANUFACTURERS AND WORLD WIDE DISTRIBUTORS OF A COMPLETE LINE OF PLANT EQUIPMENT FOR PRODUCTION OF CONCRETE PRODUCTS



EDMONT CASE NO. 603: Canvas gloves used in loading and unloading concrete block lasted 1 shift. On the same job, Edmont #30 plastic palm-coated gloves wore 5 to 6 shifts.

## Job-fitted glove outwore canvas 5 to 1



Edmont GLOVES

The concrete products plant in the case above switched to job-fitted Edmont Monkey-Grip gloves because of their outstanding wear. Their special plastic palm coating resists abrasion and snagging ... won't chip, crack or peel . . . is highly flexible with an excellent grip. For extra duty service, triple-thick palm styles available.

Free Test Offer to Listed Firms: Tell us your operation, materials handled. Without cost, we will send you gloves for on-the-job testing.

**Edmont Manufacturing Company** 1206 Walnut Street, Coshocton, Ohio In Canada write MSA, Toronto



## powerful new air entraining agent

Ayr-Trap is much more effective than other concrete air entraining agents—complies with major Federal and State Specifications including ASTM-C260-54. Newly formulated, Ayr-Trap is both economical and efficient in mixing for structural masses, paving, flooring, pipes and blocks. Less than 1 ounce per bag of cement does the job.

Ayr-Trap is guaranteed to retain its efficiency throughout storage. For complete details, write for our 4-page Ayr-Trap Catalog to Dept. H57-8101.



A. C. Horn Companies
SUBSIDIARIES AND DIVISIONS

**Sun Chemical Corporation** 10th Street & 44th Avenue, Long Island City 1, N. Y.

# odson's igest



### How to combat the high cost of concreting

Had lunch with Dick Noble the other day. Dick is a highway contractor, and he was suffering from an occupational disease — rising costs.

"I just got back from a vacation in England, Dod," Dick reported. "And while I was there I took a firsthand look at their road-building program, to see if I could pick up any pointers on how to cut costs. You might say I went there as a 'roads scholar.'"

there as a 'roads scholar.'"

"Very funny," I said. "I see your trip to England hasn't spoiled your punmanship."

"But seriously, Dod," Dick continued.
"My costs have really been rising lately.
Especially labor costs."

"Calcium Chloride really helps you out there," I pointed out. "It increases the workability of your concrete, and gives you faster hardening. This makes for faster handling, and saves your men time. And cutting your time factor cuts your costs."

"Another problem that bothers me," Dick went on, "is the weather. We've got a pretty short season up here. But I don't suppose Calcium Chloride can do anything about that."

"Wrong!" I corrected him. "Calcium Chloride increases the strength of concrete in cold weather. This enables you to extend the season at both ends . . . permits all-year concreting in many areas."

"That's right, come to think of it,"
Dick agreed. "I remember the highway
I saw in Alaska . . . and then there
was a job up in Iceland. They wouldn't
have had any season at all without
Calcium Chloride."

"You get around quite a bit, don't you?" I said, impressed.

"I do a lot of traveling," Dick admitted. "In fact, you might say I'm the roamin'est Noble of them all."

- L. D. Dodson

P.S. — Find out how Wyandotte Calcium Chloride can help you cut concreting costs. The facts are all in our folder, "How To Make Better Concrete Products and Readynix." For your free copy, just drop me a line. Wyandotte Chemicals Corporation, Wyandotte, Michigan. Offices in principal cities.

## Wyandotte CHEMICALS



MICHIGAN ALKALI DIVISION
HEADQUARTERS FOR CALCIUM CHLORIDE

## NEW LITERATURE

SAWS AND BLADES—The Eveready Brik-Saw Company 1509 South Michigan Boulevard, Department 533, Chicago 5, has two new pieces of literature available. One is a sixpage pamphlet picturing the features of the new two-horsepower Briksawmatic and standard Briksaw. The workings of the two saws are explained.

A 12-page accordion-fold pamphlet is also available, which shows complete and up-to-date prices on all Eveready equipment and blades. Included is a masonry blade recommendation chart for cutting all masonry materials.

WATERSTOPS—Water Seals, Incorporated, manufacturer of polyvinyl plastic waterstops for concrete construction joints, has recently issued a new catalog sheet of Labyrinth Waterstops. Blueprint type specification drawings include the Labyrinth, Flextrip, Cellular and Dumb-bell waterstops in their various sizes. The data sheet is available from the company at 9 South Clinton Street, Chicago 6, Illinois.

Belt Conveyor Idlers — Eightpage Bulletin Number 119 of the C. O. Bartlett & Snow Company describes complete line of belt conveyor idlers. Designs included are the troughing, flat, self-aligning, rubber disc and return designs. The bulletin describes the construction as well as listing standard sizes, dimensions, and weights. It is available from the company at 6200 Harvard Avenue, Cleveland 5, Ohio.

FORK TRUCKS—A catalog describing the construction, operating characteristics, and specifications of the new "Ranger" line of fork trucks for outdoor handling is now available from the Industrial Truck Division, Clark Equipment Company, Battle Creek, Michigan.

Tandem Trailer Suspension— Details of the integral-axle "5th wheel" tandem trailer suspension are included in booklet MO-100, just released by A. O. Smith Corporation. Drawings give dimensions of the unit and show its internal structure. Included are reports of fleet-owners using the "5th wheels" and details of the guarantee. The bulletin is available from the company at 5715 Smithway Street, Los Angeles 22, California.

CONCRETE DELIVERY—New literature issued by *The Prime-Mover Company*, Muscatine, Iowa, describes the M-30 Prime-Mover, an 18-cubic-yard-capacity power truck for construction materials handling. The bulletin illustrates such features of the unit as hydraulic torque converter drive, and dump action controlled from driver's position.

Waffle Ceilings—Ceco-Meyer Steeldomes, for use in "Waffle-type" (two-way) concrete joist construction, are described in a new four-page brochure put out by Ceco Steel Products Corporation, 5601 West 26th Street, Chicago 50, Illinois. Features of waffle-type construction are included, as well as charts on size of Steeldomes and quantity of concrete to be used.

Engine Maintenance—The two 20-minute colored sound slide films entitled "How to Make a Motor Go... and Go, and Go," and "How to Take Step Seven," offered by Allis-Chalmers Manufacturing Company some months ago, are now available in bulletin form. The slides are reproduced in black and white in order as the stories, written out, unfold. They can be ordered from the company at Box 512, Milwaukee 1, Wisconsin.

Construction Equipment—The complete lines of Blaw-Knox equipment for concrete and bituminous paving, ready-mix plants and general construction are illustrated in a new 24-page general bulletin, Number 2530. Copies are obtainable from the Blaw-Knox Company, Construction Equipment Division, Advertising Department, Mattoon, Illinois.

## CLASSIFIED ADS-

\$10.00 per column inch. Closing date for classified advertising copy is 15th of preceding month.

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2500 — 8 x  $16\frac{1}{2}$  x  $\frac{1}{4}$  plain steel pallets. Good shape. One 15 H.P. boiler with stoker and water pump. 3500 blocks daily. 75 folding steel racks - 60 block. Fair to good - cheap.

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New Kent Blockmaker, used nine months, vibrator type. 8" and 10" mold boxes, 3000 steel and aluminum pailets, steel racks, mixer and motors. Death of owner is reason for sale.

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We truck our machine to your plant and supervise entire cleaning and planing off of pallet residue, No need to shut down as we will keep up with production. EDWARD A. LOBSTEIN

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National manufacturer is desirous of obtaining manufacturing and sales rights on any equipment or improvements used in concrete products plants on a royalty or outright purchase basis. Patents not essential. Protection guaranteed.

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Cement, Chemical and Physical Laboratories Tests of Cement, Concrete, Sand, Steel, Coment Block, Coment Brick. Chemical Analyses of All Commercial **Products. Complete Technical Supervision** of Central Mixed Concrete Plants.

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Truckman Platform Lift 4000 lbs Capacity 495.00

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B. Capacity 1956 Model 250.00 each 250.00 each 250.00 each 250.00 each 250.00 each 150.00 each 250.00 each 25 quotation).

WRITE • WIRE • PHONE Mr. McCaughey

Send in list of equipment you need. If we don't have it in stock, we usually know where we can find it at a bargain.

GENERAL ENGINES CO., INC. Route 130 Therefore, N.J.
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COLOR YOUR CONCRETE WITH LANSCO CEMENT COLORS, available in 40 ATTRACTIVE shades. Suitable for all types of concrete products. Write for our new color card. copy of "Suggestions For Using Cement Colors. and for free samples and price list.

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GERMANY'S **BEST DESIGNED** ADJUSTABLE **AMPLITUDE** VIBRATOR

Patented swinging base for uni-directional vibration or rigid base for multidirectional vibration. Can be used with wet or semi-dry mixes. Guaranteed.



## HYDROTILE MACHINERY CO. · NASHUA, IOWA

Manufacturers of packerhead pipe machines, and exclusive U. S. distributor of "Elektror" vibrators.

## FOR SALE

1940 BESSER block machine equipped with off-bearing hoist and side pallet feeder. Can be seen in Syracuse, N. Y.

1941 BESSER block machine equipped with all heavy duty shafts, power controls, 5 hp. vibrator motors with Warner magnetic brakes, 10 hp. drive motor, Bergen Height & Density Control, front pallet feeder, and off-bearing hoist. Can be seen in Milwaukee, Wis.

1943 BESSER rear pallet feed block machine, REBUILT in our plant, includes one mold attachment. Guaranteed in good operating condition.

1953 BERGEN TRI-MATIC rear pallet feed block machine, REBUILT in our plant, includes one mold attachment. Guaranteed in good operating condition.

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Bergen Machine & Tool Co., Inc. Nutley, N.J. NU 2-5526

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One Lith-I-Block two-at-a-time block machine, complete with racks (some new) and pallets. Also Steams 28 cu. ft. mixer. Priced for quick sale. One Erickson F4W demonstrator lift track with side-shifter and six cubing forks. Big discount.

Will carry new guarantee.

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### PLAIN STEEL PALLETS

made accurately

your specifications

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Concrete Block Machine Factory Reconditioned

-180, plain pallet block machine, guaran-Comes complete with motors and mold box. city 1400 blocks daily. \$2750.00. Financing

FLEMING MANUFACTURING CO. Cube, Missouri

### PALLET CLEANING

We have the most modern machines in use and can do your pallet cleaning to meet your work schedule. There is no extra charge for transporting our machines as they move on our own trucks.

EASTERN PALLET CLEANING, INC. 2424 95th Street North Bergen, New Jersey. Phone: Union 9-0260

### WANTER

72 block racks for pallet size 1/4" x 18"

State condition and price.

NIEB CONCRETE PRODUCTS CO. 1406 So. 11th Street Niles, Michigan. Phone: Mutual 3-5800

### FOR SALE

As we have installed larger STEARNS equipment, we have the following good used equipment for immediate sale

1—Columbia Model 8A automatic 1---Columbia Model 8A automatic two-unit block machine. Mold boxes for: 12" x 8" x 16", 8" x 8" x 16", 8" x 8" x 16" header, 8" x 5" x 12", 8" x 4" x 16", and 6" x 8" x 16"

Parts for corners, halves, sash, bull nose, knock out lintels and solids.

Also, molds for 1 1/8 " patio, Roman,
Norman and Gothic; splits; and common brick.

1—Stearns 28 cu. ft. skip hoist. 1—Stearns 28 cu. ft. mixer with moisture master meter.

1—42 cu. ft. Go-Corp mixer.
1—42 cu. ft. Stearns skip holst.
2—4000 lbs. Truck-Man platform

trucks. 2-4000 lbs. hand lift trucks.

25—60 block (pipe) racks. 51—48 block sectional block racks. 50-72 block racks.

450 Plywood pallets. 1-Columbia splitter.

2—Aggregate bins, 121/2 yds. capac-

ity, each with batcher. The block machine and mold boxes have been used approximately two years. All equipment is clean and in good operating condition and can be inspected. Will sell as a complete package or individually. Financing can be arranged for a reputable buyer. Contact:

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## MASSIVE CONSTRUCTION plus SMOOTH OPERATION ... the OSWALT BLOCK MACHINE

is specially designed and built for heavy-duty, high speed and relaxed operation . . . gives top production without sacrifice of quality.

Exclusive profit-promoting OSWALT

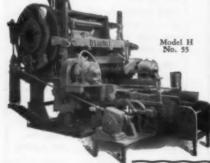
- features include

  Shock-Free Block Ejector and Front End Pallet Feeder
- · Simplified Height and Density Control
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Let us assist you in making improvements or equipping a new plant.

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Columbia model 12 - 3 block machine with mould.

Columbia 50 cu. ft. mixer with mo-

### J. H. VAN ALSBURG

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WORLDS BEST Stripping Splash Block Molds 21/2"x111/2"x36"



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Let us imprint your name on any item. (35 characters, 2 lines). Write for illus-trated folder and new low price list. Im-mediate delivery. Samples sent on request.

THE FREDERICK MFG. CO. ELKHART, INDIANA

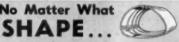
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- The Standard of Comparison for Nearly Forty Years
- 65 Shades to Choose From Including Many **New Colors**

Send For Latest COLOR CARD, Samples, Technical Brochure, and Quotations.

SMITH CHEMICAL & COLOR CO. 53-57 John St., Brooklyn 1, N.Y.

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QUINN CONCRETE PIPE FORMS Set The STANDARD For Producing Quality Pipe!

Over 50 years of experience go into the production of every Quinn Concrete Pipe Form. That's why the Quinn Heavy Duty form is recognized as the STANDARD the world over for producing quality concrete pipe at the lowest cost, Used in making pipe by vibration, spading, or tamping. Sizes for pipe 10° to 120° and larger. Tongue and groove (as shown) or bell end pipe in any length desired. No matter what size, shape, or length pipe you need, there's a Quinn pipe form made to fit your requirements. Write today for our FREE catalog and estimates.







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## **Two-way Street**

# THE EDITOR'S PAGE

DEMURRAGE charges — monetary penalties assessed a customer for tying up a ready mixed truck longer than a specified number of minutes per cubic yard — have been discussed with some frequency over the years.

Of interest here, though, is the almost opposite of the usually-considered demurrage charge — a producer's self-imposed penalty for delaying the customer's crews at the job site.

Recently, General Ready Mixed Concrete, Incorporated, of Clearwater, Florida, announced its new "bonded delivery" service to its regular customers. Briefly, this producer guarantees its regular customers three and one-half cubic yards of concrete free, or the cash equivalent, if the first load doesn't arrive at the site within half an hour of the specified delivery time.

Certainly, institution of this policy should gain for General a considerable quantity of good will from its regular and potential customers.

Other producers might agree with us that something close to this "bonded delivery" would negate one of the objections to customer demurrage charges — the belief that customers consider the penalties too one-sided.

The advantages to a combination of the two policies are quite numerous:

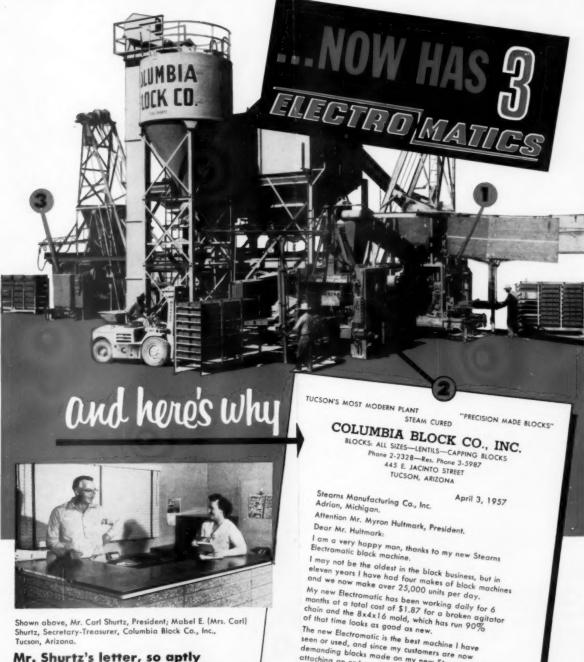
At the very least, a producer's employees would tend to institute controls to keep management from having to pay too many late-delivery penalties. And, of course, if too many three-and-one-half yard gifts had to be dispensed to customers, management would be quick to discover and correct deficiencies in their dispatching and/or delivery systems.

Almost paralleling the producer's benefits would be those accruing to his customers. Men and forms would be ready to receive the concrete at the job site if customers were assured the ready mixed truck would be there close to the time appointed. Too, each pour would be completed as soon as possible so as not to incur a fine.

Overall, as we see it, both organizations should profit from greater control. They would find themselves getting more work out of the same personnel and equipment, and at less cost.

DOUGLAS LEE

# COLUMBIA BLOCK CO., INC., TUCSON, ARIZONA



Mr. Shurtz's letter, so aptly stated . . . reflects the sentiment of ALL ELECTROMATIC USERS!

ADRIAN . MICHIGAN . U.S.A.

seen or used, and since my customers are now demanding blocks made on my new Stearns, I am attaching an order with deposit for two more new Electromatic machines for RUSH delivery.

Should any prospective purchaser desire information on operation have them contact me by letter or telephone and I will happily tell them to buy Stearns.

Very truly yours,

Columbia Block Co., Inc.



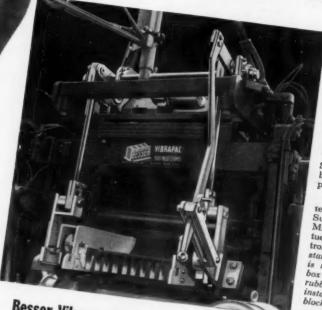
# Blockmakers' News



Vol. LIII No. 1

Dedicated to the Production of More High Quality Concrete Masonry Units

# New Besser Automatic Feed Control **Proves Popular with Vibrapac Users**



## Besser Vibrapac Feature Provides a Visible Means of Controlling Quality of Block

Last year, the Besser Company made another important contri-bution to the Concrete Block Industry--AUTOMATIC FEED CONTROL—a visible means of controlling the quality of concrete

Every block manufacturer wants block produced in his plant to be of uniform quality. Like peas in a pod, all units must be identically the same. The Besser Automatic Feed Control com-pensates for all conditions of feed - too much, too little, too wet, too dry. Thus feeding by guess is eliminated.

The amount of feed is automatically regulated between

each forward motion of the feed box, in 1/16" increments, up or down. That means each block will have an unvarying modular height, uniform texture and desired density. The supervisor on the job merely watches the control panel. He can actually see the seconds · · even frac-tions of a second · · · consumed in vibration under pressure.

Vibrapac operators who have used the Besser Automatic Feed Control, heartily endorse this new feature, Harvey H. President of Domine Building Supply Corp., Rochester, N. Y. es the new feed control on all

block. He states: "I like the ease, accuracy and speed of adjustment on your Automatic Feed Control, especially since cut-off bar does not have to be manual-

James F. Harris, Manager of Schuster Coal Co., Indianapolis, Indiana, writes: the Automatic Feed Control is one of the finest things that ever was put on the Besser machine." With this new equipment, Schuster has actually increased block production by 100 units per day.

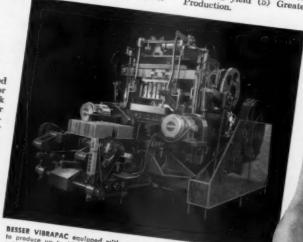
Maynard Simmons, Superintendent of Standard Block and Supply Company, Michigan, frankly extols the vir-Lansing, tues of the Automatic Feed Control. "It gives us a more con-stant speed," he relates. "There is no overloading of the mold box ... no crushing of pallet Since this feature was installed, we have averaged 27 block per hr. more than before."



CONTROL PANEL, with 10" CONTROL PANEL, with 10" dial indicator. Shows at a glance the exact finish time in exconds and fractions of a second, panel includes selector switch for either hand or automatic operation.

5 Important Advantages

The New Besser Automatic Feed Control assures (1) Higher quality block Controlled density (3) A minimum of supervision (4) Increased yield (5) Greater



BESSER VIBRAPAC equipped with new Automatic Feed Control. Enables to applying the LD OND black-quality black are about 18" or applying an applying the local part of the control of the co

BESSER Company Dept. 127, Alpena, Mich., U. S. A. • 1st in Concrete Block Machines